DLP TV

Chassis : L65A(N)_Excalilbur
Model : HLR5078WX/XAA (HL-R5078W)
HLR5678WX/XAA (HL-R5678W)
HLR6178WX/XAA (HL-R6178W)

SERVICE Manual

DLP TV

HL-R5078W

FEATURES

- HD Built in TV
- NTSC/ATSC/QAM Tuner Embedded
- AV network system (Anynet, D-Net)
- TV Guide On Screen™ system (Gemstar EPG)
- Digital Audio output (OPTICAL) jack
- Cable CARD™ slot
- Firmware upgrade by USB Port

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1. Precaution

To avoid possible damages or electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

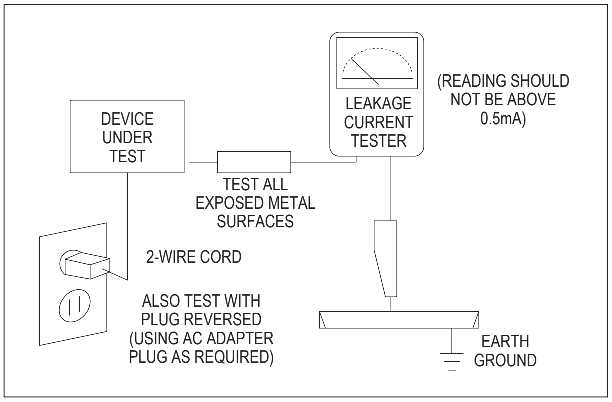

DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1-1 AC Leakage Test

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage.
   Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earthed end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earthed ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new regular ones immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with (⚡ ⚠). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

11. Pay additional attention to the current leakage as the voltage between the power board and the ballast is 220 to 440v, i.e. very high.
    And also beware of possible electric shock from the primary power source.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 ㏁.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so ensure wearing protective gloves during the repair.

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or ass'ys. Alternatively, wear a dischargeable wrist-belt.
   (Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD ass'y and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals.
   Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
   Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit ass'y.

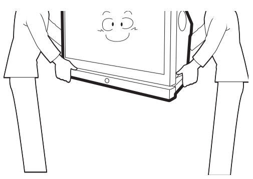
9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

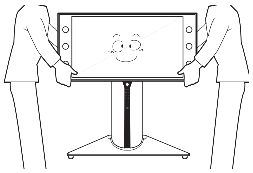
CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.





2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. When installing the product, make sure to keep it away from the wall (more than 10cm/4 inches) for ventilation purposes.
   Poor ventilation may cause an increase in the internal temperature of the product, resulting in a shortened component life and degraded performance.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. When connecting the RF antenna, check for a DTV receiving system and install a separate DTV reception antenna for areas with no DTV signal.

8. Check the basics of the screen test.
   - Image position/size, Tilt adjustment, Actuator activation

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2. Product Specification

2-1 Product Features

Block	Specfication	Major IC	Remark
DMD	- Panel Resolution : 1920x1080	xHD3 DMD Panel	
RF	- Integrated HDTV Tuner (NTSC/ATSC/QAM TUNER Embedded)	ATI NXT2004, QAMLink	
Power	- Input Voltage : AC120V - Stand-By : under 25W	Stand-by (KA1M0565)	
Video	- DNIe4- NTSC, ATSC- HDMI,PC - 3D Comb filter	ADV7401, ATI X226B, uD64083	
Sound	- speaker : 20W x 2 - Trusurround XT, Dolby Digital	MSP4440	
Cabinet	- L8 Design		

■ Chip Description

- ATI x226B : Xilleon 226 is the most advanced and highly integrated component for digital set-top boxes, information appliances, and televisions. Xilleon 226 provides dual-stream high-definition decode and display, an assortment of peripheral device controllers, and an embedded microprocessor.
- ADV7401 : The ADV7402 is an integrated video decoder that automatically indicates and converts High Definition or Standard Definition analog baseband television signal into a 4:2:2 component digital video data stream compatible with 20/16-bit or 10/8-Bit CCIR601/CCIR656 outputs for standard definition & SMPTE293M/296M/274M & ITU-R.BT1358 for High definition. All RGB graphics signals are output as 30-bit 4:4:4 RGB or 20-bit 4:2:2 YCrCb.
- MSP4440 : The MSP 44x0G family of single-chip Multi standard Sound Processors covers the sound processing of all analog TV-Standards worldwide, as well as the NICAM digital sound standards.
- ATI NXT2004 : The NXT2004 is a VSB/QAM receiver designed to operate in both the ATSC terrestrial and cable TV environments. The device is intended for use in set-top applications, PC based applications and DTV systems. For VSB or QAM channels the NXT2004 samples a 44 MHz IF signal, and presents MPEG data packets at the output.
- QAMLink : The BCM3125 combines an in-band 256-QAM receiver, an out-of-band QPSK receiver, a 4/16-QAM transmitter and tuner interface functions.
- uPD64083 : uPD64083 realizes a high precision Y/C separation and a noise reduction by the three-dimension signal processing for NTSC signal.

2-2 Key Features

Model	HL-R5078W	HL-R5678W	HL-R6178W	HL-R7178W
Voltage	AC 110 - 120V~	AC 110 - 120V~	AC 110 - 120V~	AC 110 - 120V~
Frequency of Operation	60Hz	60Hz	60Hz	60Hz
Power Consumption	230 watts	230 watts	230 watts	230 watts
Dimensions (W x D x H)	46.54 x 13.98 x 34.24 inches 1182 x 355 x 869.7 mm	52.36 x 15.30 x 37.86 inches 1330 x 388.5 x 961.7 mm	56.93 x 18.40 x 41.58 inches 1446 x 467.4 x 1056.2 mm	65.79 x 20.43 x 46.81 inches 1671 x 519 x 1189 mm
Weight	34.3 Kg / 75.62 lbs	38.5 Kg / 84.77 lbs	45 Kg / 99.21 lbs	58.9 Kg / 116.6 lbs

■ H/W Configuration
- DMD Panel : 0.85" (1920 x1080p, TI)
- 1 Optical Engine for the Panel : Slim and Cost-effective
- Color Wheel : R/G/B Color Implementation
- Lamp : 120W : 50", 56", 61"
  132W : 71"
- 2 NTSC/ATSC/QAM Tuners : NTSC/DTV Reception, Gemstar EPG & IR Transmitter
- Support HDMI Interface : Adopts DVI/HDMI systems for digital HDs including STB.
- DNIe4 : High quality image implementation
- AnyNet Feature : An enhanced interface for various external devices
- USB Interface : Use the USB interface for service purposes (S/W Upgrade)

■ S/W Configuration
- MCU : Built-in 300 MHz MIPS X226B CPU
- 4-Layered Architecture : Device Driver/OS/Hardware Abstraction/Application
- OSD : 32Bit True Color Graphics OSD
- Enhanced system stability by separating the DTV control and the application control systems into multi-processes.

■ Picture
- DMD Panel
  - * Panel Size : 0.85"
  - * Panel Resolution : 1920 x 1080
- Tuner : Integrated HDTV Tuner (NTSC/ATSC/QAM TUNER Embbeded)
- Display Format : 1920 x 1080

■ Sound
- Sound System : TruSurround XT,Dolby Digital
- Amp/Channel : 2 Channel Digital Amp
- Speaker System & Output(RMS)
  - * Main L/R : 15W + 15W
  - * Sound (RMS) : 15W + 15W

■ In/Out Terminals
- Rear : 2 RF In, 3 CVBS In, 3 S-VHS In, 2 Component In, 1 PC D-SUB In,
  2 HDMI In(DVI Comportable With Adaptive Jack Only), 1 Anynet port, 2 IEEE1394, 1 Gemstar IR out, 1 Optical audio,
  1 POD Card slot, 1 RS-232C port

■ Feature

- Component Interface (480i/480p/720p/1080i, Y/Pb/Pr)
- Digital Interface : HDMI
- Graphic Interface : PC
- Language : English/French/Spanish
- PIP : HD/SD PIP
- Picture Size : 4:3/16:9/Zoom1/Zoom2/Panorama
- V-CHIP
- Closed Caption
- Sleep Timer : 180 Min.
- Anynet Interface
- IEEE1394
- Optical sound output
- Gemstar IR output
- POD
- RS-232C

■ Remocon

- TM76

■ Power Supply

- 120V

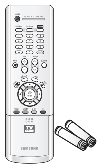
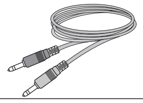
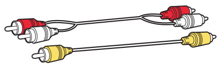
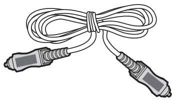
■ PIP Settings (X : PIP doesn't operate, △: PIP operate and swap doesn't operate, ○: PIP and swap operate)

Main Sub	ATSC	QAM	NTSC	AV1	AV2	AV3	S-Video1	S-Video2	S-Video3	Component1	Component2	HDMI	PC	D-Net
ATSC	X	X	X	X	X	X	X	X	X	X	X	X	X	▲
QAM	X	X	X	X	X	X	X	X	X	X	X	X	X	▲
NTSC	▲	▲	O	O	O	O	O	O	O	O	O	▲	X	▲
AV1	▲	▲	O	X	O	O	O	O	O	O	O	▲	X	▲
AV2	▲	▲	O	O	X	O	O	O	O	O	O	▲	X	▲
AV3	▲	▲	O	O	O	X	O	O	O	O	O	▲	X	▲
S-Video1	▲	▲	O	O	O	O	X	O	O	O	O	▲	X	▲
S-Video2	▲	▲	O	O	O	O	O	X	O	O	O	▲	X	▲
S-Video3	▲	▲	O	O	O	O	O	O	X	O	O	▲	X	▲
Component1	▲	▲	O	O	O	O	O	O	O	X	O	▲	X	X
Component2	▲	▲	O	O	O	O	O	O	O	O	X	▲	X	X

2-3 Specifications Analysis

Model		HL-R5078W	HL-R5678W	HL-R6178W	HL-R7178W	HL-R5087W	HL-R5688W
Design							
Picture	Display Device	DLP	DLP	DLP	DLP	DLP	DLP
	Built-in Tuner	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC	ATSC, NTSC
	Display Format	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080i, 720p, 480p, 480i	1080p, 1080i,720p, 480p,480i
	Screen Size	50 inch	56 inch	61 inch	71 inch	50 inch	56 inch
	Aspect ratio	16:9	16:9	16:9	16:9	16:9	16:9
	Progressive scan	Yes	Yes	Yes	Yes	Yes	Yes
	Digital Comb Filter	3D Comb	3D Comb	3D Comb	3D Comb	3D Comb	3D Comb
	First Surface Mirror	Yes	Yes	Yes	Yes	Yes	Yes
	Brightness	800cd/㎡	600cd/㎡	500cd/㎡	400cd/㎡	800cd/㎡	800cd/㎡
	Contrast	10000:1	10000:1	10000:1	10000:1	2500:1	10000:1
	Color Wheel Size/Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing	7segment/65 ¢ , Air Bearing
	Anti-glare Sun Screen	Yes	Yes	Yes	Yes	Yes	Yes
	Screen Pitch	0.098mm	0.098mm	0.098mm	0.098mm	0.098mm	0.098mm
	Image enhancer	DNIe4	DNIe4	DNIe4	DNIe4	DNIe3	DNIe4
	DMD	xHD3	xHD3	xHD3	xHD3	xHD2	xHD3
Audio	Base/Tremble/Balance	No	No	No	No	No	No
	Equalizer	5 Band	5 Band	5 Band	5 Band	5 Band	5 Band
	Auto Volume Leveler	Yes	Yes	Yes	Yes	Yes	Yes
	Surround Sound	TruSurround XT Dolby Digital	TruSurround XT Dolby Digital	TruSurround XT Dolby Digital	TruSurround XT Dolby Digital	TruSurround XT Dolby Digital	TruSurround XT Dolby Digital
	Speaker system	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker	2 Way 4 Speaker
	Output Power	15Wx2	15Wx2	15Wx2	15Wx2	15Wx2	15Wx2
Features	2-Tuner Split-Screen PIP	Yes(HD/SD/QAM)	Yes(HD/SD/QAM	Yes(HD/SD/QAM)	Yes(HD/SD/QAM)	Yes(HD/SD)	Yes(HD/SD/QAM)
	Split-screen Side-by-Side	Yes	Yes	Yes	Yes	Yes	Yes
	MTS with dbx Noise Reduction/SAP	Yes	Yes	Yes	Yes	Yes	Yes
	Still Picture	Yes	Yes	Yes	Yes	Yes	Yes
Connections	Plug & Play	Yes	Yes	Yes	Yes	Yes	Yes
	EPG	Gemstar EPG	Gemstar EPG	Gemstar EPG	Gemstar EPG	Gemstar EPG	Gemstar EPG
	Anynet	Yes	Yes	Yes	Yes	Yes	Yes
	S-Video In	Rear 2/Side 1	Rear 2/Side 1	Rear 2/Side 1	Rear 2/Side 1	Rear 2	Rear 2
	HDTV Component Video Input (Y, Pb, Pr) 1080i/480P/480i	Rear 2	Rear 2	Rear 2	Rear 2	Rear 2	Rear 2
	PC	Yes	Yes	Yes	Yes	No	No
	HDMI	Yes	Yes	Yes	Yes	Yes	Yes
	Digital Sound	Optical 1	Optical 1	Optical 1	Optical 1	Optical 1	Optical 1

2-4 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		Remocon Alkaline Battery	BP59-00071B 4301-000103	Samsung Service center
		Manual	BP68-00513A	
		ANYNET cable	BN39-00518B	
		G-Link Cable	MD96-00036A	
Accessories that can be purchased additionally		Video Cable / Audio Cable	-	Internal shopping mall
		Antenna Cable	-	
		Component Cable	-	
		Optical Cable	-	

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3. Alignment & Adjustment

3-1 Service Instruction

■ Check items listed after changing each

Check Items / Replaced Items	S/W Version	Front LCD	Index Delay	Actuator Gain	V-Position H-Position	CCA	Board LED	Tilt Focus
Digital Board	●		●	●	●	●		
Analog Board		●					●	
Power Board		●					●	●
Optical Engine		●	●	●	●	●		●
DMD Board				●				●
Lamp		●						
Color Wheel			●			●		
Front LED Assy		●						
Actuator Subdetector Board		●						

1. Software version check :
   After Entering the Service mode, Check the list below
   * S/W Notation
   "T_EXCAAUSO_00XX" indicates "EXCALIBUR BASIC MODEL USA, ver. 0001".

T_EXCAAUSO_00XX
2005_XX_XX
T-DTVUCOM5-00XX
T-XMENAUS0_00XX

2. Front Information Window check : See page 6-7.

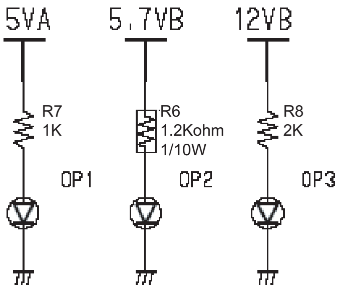
3. Index Delay adjustment : See page 3-15.

4. Actuator Gain adjustment : See page 3-17.

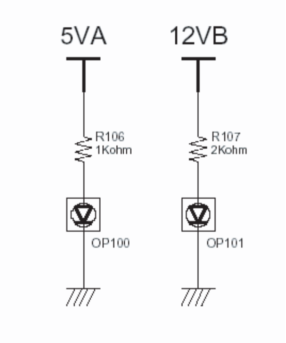
5. Vertical / Horizontal Position adjustment : See page 3-15.

6. CCA : See page 3-16.

7. Board LED check : Check all the LED are turned on.
   (In the Analog, Detect Board)



Power Check Indicator LED
(Analog Board)



Power Check Indicator LED
(Detect Board)

8. Tilt/Focus adjustment : See page 3-19.

3-2 How to Access Service Mode

1. Turn off the power to put the unit into the STAND-BY mode.

2. In order to enter the Service Mode, Press "Mute" → "1” → "8" → "2" → "POWER" button on the Remote Control.
In case entry into SERVICE MODE is unsuccessful, repeat the procedures above.

3. Initial DISPLAY State in times of Service Mode Switch overs

DDP1011(L8)
DNIe
ADV7401(M)
ADV7401(S)
Xilleon226
uPD64083
MSP4440
CCA(ON)
Cinema CCA
SP Actuator
ESP
GM1601
CHECKSUM
OPTION
SERVICE

T_EXCAAUSO_00XX
2005_XX_XX
T-DTVUCOM5-00XX
T-XMENAUS0_00XX

4. Buttons operations within Service Mode

MENU	Full Menu Display / Move to Parent Menu
Direction keys ▲ / ▼	Item Selection by Moving the Cursor
Direction keys ◀ / ▶	Data Increase/Decrease for the Selected Item
Source	Cycles through the active input source that are connected to the unit

3-3 Factory Data

★ The underlined are items applied during the service adjustment. None of the others should be adjusted.

1. DDP1011

No	Item	Range	Default	Remark
1	V-Position	0 ~ 60	30	Screen upper and lower adjustment
2	H-Position	0 ~ 120	60	Screen left and right adjustments
3	LAMP Sync Type	Pulse/Pass	Pulse	Pulse(P), Pass(T)
4	INDEX DELAY	0 ~ 1023	166	Synchronizes the base position of the color wheel with the corresponding color signal. This is critical to the natural color display. If the index delay is not properly set, even the correct CCA cordinates will not help when displaying natural colors.
5	SEQ SELECT	-	0X05	Sequence Selection
6	V-FLIP	Normal/Flip	Flip	Vertical Flip Operation
7	H-FLIP	Normal/Flip	Flip	Horizontal Flip Operation
8	Gamma	0 ~ 15	2	Gamma Table Selection
9	SLR	0 ~ 1	OFF	SLR Funcion On/Off
10	DMD_BIAS	0 ~ 4	E	DMD Bias pin voltage selection
11	Lamp Boost	0 ~ 63	20	Lamp Boost value selection
12	Lamp Sync Delay	0 ~ 4095	0/120	Lamp Sync delay value selection
13	FPGA		xHD3	xHD3/xHD4 selection
14	Lamp Watt		132W	120W/132W
15	Lamp Select		Philips	Philips, Osram, Ushio
16	Test Pattern		0	This displays the built-in pattern of the DDP1011 chip. DDP1011 drives the DMD panel, so displaying this pattern means there is no error in the DDP1011 projection function and the panel itself.

2. DNIe

No	Item	Range	Default	Remark
1	Test Pattern		0	Test pattern selection
2	NR	-	-	
3	SNI_PROC_CEA	ON/OFF	ON	
4	SNI_PROC_CEP	ON/OFF	OFF	
5	SNI_PROC_DEP	ON/OFF	ON	
6	SNI_PROC_DCE	ON/OFF	ON	
7	SNI_PROC_CCS	ON/OFF	ON	
8	SNI_PROC_BWS	ON/OFF	ON	
9	SNI_PROC_PCC	ON/OFF	ON	
10	SNI_PROC_WTC	ON/OFF	ON	
11	SNI_PROC_CTE	ON/OFF	OFF	
12	SNI_PROC_CVD	ON/OFF	OFF	
13	SNI_PROC_OUTP	ON/OFF	ON	
14	CUTOFF	0~255	32	
15	UPPER	0~255	240	
16	LCE_GAIN	0~255	0	
17	ALPHAL	0~255	170	
18	ALPHAU	0~255	170	
19	DCE_ALPHA	0~255	50	
20	B_RATIO		12000	Low level information for the minimum value
21	W_RATIO		6000	High level information for the minimum value
22	BLACK_TILT	0~255	90	Black Stretch Area
23	WHITE_TILT	0~255	240	White Stretch Area
24	GAIN_X1	0~63	70	Gain of horizontal high frequency region
25	GAIN_X2	0~63	35	Gain of horizontal middle frequency region
26	GAIN_Y1	0~63	10	Gain of vertical high frequency region
27	GAIN_Y2	0~63	10	Gain of vertical middle frequency region
28	SUP_LIFT_SEL	ON/OFF	OFF	
29	EXT_SEL	ON/OFF	OFF	
30	BOOL_SUPP_SELX1	ON/OFF	ON	
31	BOOL_SUPP_SELX2	ON/OFF	ON	
32	BOOL_SUPP_SELY1	ON/OFF	OFF	
33	BOOL_SUPP_SELY2	ON/OFF	OFF	
34	BOOL_ENH_SEL	ON/OFF	ON	
35	LOG_MODE	ON/OFF	ON	
36	R_MR	-	60	
37	CORING_ON	ON/OFF	ON	
38	RTH1	0~31	0	
39	RTH2	0~31	3	

No	Item	Range	Default	Remark
40	NDON	ON/OFF	ON	
41	M_CCT_FAC	0~1022	75	
42	SCALE_ALPHA	0~255	224	
43	WB_RED_C_COEFF	0~255	128	
44	WB_GRN_C_COEFF	0~255	128	
45	WB_BLU_C_COEFF	0~255	128	
46	WB_RED_B_COEFF	0~1023	512	
47	WB_GRN_B_COEFF	0~1023	512	
48	WB_BLU_B_COEFF	0~1023	512	
49	R_Coring_TH1		3	
50	R_Coring_TH2		3	
51	R_Coring_TH3		3	
52	R_Coring_TH4		3	
53	H_FILTER1	0~11	0	
54	H_FILTER2	0~10	0	
55	V_FILTER1	0~4	0	
56	V_FILTER2	0~3	0	
57	Sub Color		53	
58	DNIe On/Off		OFF	
59	Sub Contrast	50~150	105	Brightness adjustment for the high-light parts of the screen
60	Contrast Offset		5	
61	Sub Brightness		235	Brightness adjustment for the low-light parts of the screen

3. ADV7401(M)

No	Item	Range	Default	Remark
1	AUTO COLOR			Auto Color function execution
2	SOG_SYNC_LEV			Embedded Sync Trigger Level
3	AGC_TIM			AGC Time Constant Selection
4	GAIN_MAN			ON,OFF Manual Gain Control Enable
5	A_GAIN			Manual Gain Value for Channel A
6	B_GAIN			Manual Gain Value for Channel B
7	C_GAIN			Manual Gain Value for Channel C
8	A_OFFSET			Channel A Offset
9	B_OFFSET			Channel B Offset
10	C_OFFSET			Channel C Offset
11	YPM		64	Y Peaking Filter Mode
12	YSFM		1	Y Shaping Filter Mode
13	WYSFM		19	Wide Band TY Shaping Filter Mode
14	CSFM		0	C Shaping Filter Mode
15	Contrast		128	Contrast Adjust
16	Brightness		128	Brightness Adjust
17	Hue		128	Hue Adjust
18	CKILLTHR		3	Colour Kill Threshold
19	SD_OFF_Cb		128	SD Offset Cb Channel
20	SD_OFF_Cr		128	SD Offset Cr Channel
21	SD_SAT_Cb		125	Saturation Cr Channel
22	SD_SAT_Cr		125	Saturation Cb Channel
23	IFFILTSEL		3	IF Filter Select
24	LTA		0	Luma Timing Adjust
25	CTA		2	Chroma Timing Adjust
26	DNR_TH1		0	DNR Noise Threshold
27	DCT		0	Digital Clamp Timing
28	LAGC		0	Luma Automatic Gain Control
29	LAGT		3	Luma Automatic Gain Timing
30	LMG		1184	Luma Manual Gain
31	CAGC		2	Chroma Automatic Gain Control
32	CAGT		3	Chroma Automatic Gain Timing
33	CMG		2458	Chroma Manual Gain
34	CTI_AB_EN		ON	ON,OFF Chroma Transient Improvement Alpha Blend Enable
35	CTI_AB		3	Chroma Transient Improvement Alpha Blend

No	Item	Range	Default	Remark
36	CTI_C_TH		8	CTI Chroma Threshold
37	NSFSEL		0	Split Filter Selection NTSC
38	CTAPSN		2	Chroma Comb Taps NTSC
39	CCMN		0	Chroma Comb mode NTSC
40	YCMN		0	Luna Comb Mode NTSC
41	HSSLICE			
42	VSSLICE			
43	DLL_PH		0	
44	ST_NOISE			Sample Phase Adjustment
45	ALIAS_FILTER_EN		OFF	
46	DNR-TH2			

4. ADV7401(S)

No	Item	Range	Default	Remark
1	AUTO COLOR			Auto Color function execution
2	SOG_SYNC_LEV	0~31	11	Embedded Sync Trigger Level
3	AGC_TIM	0~7	0	AGC Time Constant Selection
4	GAIN_MAN		ON	ON,OFF Manual Gain Control Enable
5	A_GAIN	0~1024	275	Manual Gain Value for Channel A
6	B_GAIN	0~1024	287	Manual Gain Value for Channel B
7	G_GAIN	0~1024	287	Manual Gain Value for Channel C
8	A_OFFSET	0~1024	0	Channel A Offset
9	B_OFFSET	0~1024	512	Channel B Offset
10	C_OFFSET	0~1024	512	Channel C Offset
11	YPM	0~255	64	Y Peaking Filter Mode
12	YSFM	0~32	1	Y Shaping Filter Mode
13	WYSFM	0~32	19	Wide Band TY Shaping Filter Mode
14	CSFM	0~7	0	C Shaping Filter Mode
15	Contrast	0~255	128	Contrast Adjust
16	Brightness	0~255	128	Brightness Adjust
17	Hue	0~255	128	Hue Adjust
18	CKILLTHR	0~7	5	Colour Kill Threshold
19	SD_OFF_Cb	0~255	128	SD Offset Cb Channel
20	SD_OFF_Cr	0~255	128	SD Offset Cr Channel
21	SD_SAT_Cb	0~255	125	Saturation Cr Channel
22	SD_SAT_Cr	0~255	125	Saturation Cb Channel
23	IFFILTSEL	0~7	3	IF Filter Select
24	LTA	0~3	0	Luma Timing Adjust
25	CTA	0~7	3	Chroma Timing Adjust
26	DNR_TH1	0~255	0	DNR Noise Threshold
27	DCT	0~3	0	Digital Clamp Timing
28	LAGC	0~7	0	Luma Automatic Gain Control
29	LAGT	0~3	3	Luma Automatic Gain Timing
30	LMG	0~4096	1064	Luma Manual Gain
31	CAGC	0~7	2	Chroma Automatic Gain Control
32	CAGT	0~3	3	Chroma Automatic Gain Timing
33	CMG	0~4096	2458	Chroma Manual Gain
34	CTI_AB_EN		ON	ON,OFF Chroma Transient Improvement Alpha Blend Enable
35	CTI_AB	0~3	3	Chroma Transient Improvement Alpha Blend

No	Item	Range	Default	Remark
36	CTI_C_TH	0~255	8	CTI Chroma Threshold
37	NSFSEL	0~3	0	Split Filter Selection NTSC
38	CTAPSN	0~3	2	Chroma Comb Taps NTSC
39	CCMN	0~7	0	Chroma Comb mode NTSC
40	YCMN	0~7	0	Luna Comb Mode NTSC
41	HSSLICE			
42	VSSLICE			
43	DLL_PH			
44	ST_NOISE		0xFFFF	Sample Phase Adjustment
45	ALIAS_FILTER_EN		OFF	
46	DNR-TH2			

5. Xilleon226

No	Item	Range	Default	Remark
1	Main/Sub		Main	
2	Y/UV	Y/UV	Y	
3	H Filter		gh121a	
4	V Filter		128v05f	
5	226 TEST PATT			

6. Upd64083

No	Item	Range	Default	Remark
1	DYCOR	0~15	2	DY detection coring level
2	DYGAIN	0~15	9	DY detection gain
3	DCCOR	0~15	3	DC detection coring level
4	DCGAIN	0~15	6	DC detection gain
5	YHCOR	0~15	1	Y output high frequency component coring
6	CDELAY	0~15	4	C signal output delay
7	YPFT	0~15	3	YPFT adjustment
8	YPFG	0~15	7	YPFG adjustment

7. MSP4440

No	Item	Range	Default	Remark
1	MDB Effect	0~127	56	Micronas Dynamic Bass
2	SRS Dialog	0~127	50	SRS Dialog clarity adjustment
3	PLL			Pilot low adjustment
4	PLH			Pilot high adjustment

8. CCA

No	Item	Range	Default	Remark
1	CCA	On/Off	ON	CCA On/Off Selection
2	Red-x	0~32768	640	Red-x adjustment
3	Red-y	0~32768	340	Red-y adjustment
4	Red-Y	0~32768	86	Red-Y adjustment
5	Green-x	0~32768	300	Green-x adjustment
6	Green-y	0~32768	620	Green-y adjustment
7	Green-Y	0~32768	300	Green-Y adjustment
8	Blue-x	0~32768	150	Blue-x adjustment
9	Blue-y	0~32768	60	Blue-y adjustment
10	Blue-Y	0~32768	53	Blue-Y adjustment
11	White-x	0~32768	291	White-x adjustment
12	White-y	0~32768	300	White-y adjustment
13	White-Y	0~32768	439	White-Y adjustment
14	WB Spread			Spread CCA value to all mode
15	Move HDMI			Move to the HDMI Mode
16	DRedX		640	Target Red X value for CCA
17	DRedY		340	Target Red Y value for CCA
18	DGreenX		300	Target Green X value for CCA
19	DGreenY		620	Target Green Y value for CCA
20	DBlueX		150	Target Blue X value for CCA
21	DBlueY		60	Target Blue Y value for CCA
22	DCyanX		205	Target Cyan X value for CCA
23	DCyanY		270	Target Cyan Y value for CCA
24	DMagentaX		290	Target Magenta X value for CCA
25	DMagentaY		140	Target Magenta Y value for CCA
26	DYellowX		425	Target Yellow X value for CCA
27	DYellowY		515	Target Yellow Y value for CCA
28	[COOL2] DWhiteX		264	
29	[COOL2] DWhiteY		267	
30	[COOL1] DWhiteX		269	
31	[COOL1] DWhiteY		274	
32	[NORMAL] DWhiteX		285	
33	[NORMAL] DWhiteY		293	
34	[WARM1] DWhiteX		291	
35	[WARM1] DWhiteY		300	
36	[WARM2] DWhiteX		313	
37	[WARM2] DWhiteY		329	

9. Cinema CCA

No	Item	Range	Default	Remark
1	DRedX		640	Target Red X value for CCA
2	DRedY		340	Target Red Y value for CCA
3	DGreenX		300	Target Green X value for CCA
4	DGreenY		620	Target Green Y value for CCA
5	DBlueX		150	Target Blue X value for CCA
6	DBlueY		60	Target Blue Y value for CCA
7	DCyanX		205	Target Cyan X value for CCA
8	DCyanY		270	Target Cyan Y value for CCA
9	DMagentaX		290	Target Magenta X value for CCA
10	DMagentaY		140	Target Magenta Y value for CCA
11	DYellowX		425	Target Yellow X value for CCA
12	DYellowY		515	Target Yellow Y value for CCA
13	D-White-X		313	Target White X value for CCA
14	D-White-Y		329	Target White Y value for CCA

10. SP Actuator

No	Item	Range	Default	Remark
1	Actuator Gain [Patt1]	0~175	95	Actuator Gain adjustment
2	Actuator Gain [Patt2]	0~175	95	Actuator Gain adjustment
3	Actuator ON/OFF		ON	Actuator On/Off selection
4	DB ON/OFF	ON/OFF	ON	
5	DB Gain	0~3	1	
6	DB Aperture	MIN/MAX		
7	DB Gain	0~255	0	

11. ESP(Enhance Smooth Picture)
xHD3/xHD4 Option(This model is not used.)

12. GM1601

No	Item	Range	Default	Remark
1	ADC_RED_GAIN		128	
2	ADC_GRN_GAIN		128	
3	ADC_BLU_GAIN		128	
4	ADC_RED_OFFSET		50	
5	ADC_GRN_OFFSET		50	
6	ADC_BLU_OFFSET		50	
7	MADI_QUANT_TH0		4	
8	MADI_QUANT_TH1		7	
9	MADI_QUANT_TH2		64	
10	GAMMA_CONTROL		OFF	
11	AUTO_COLOR		OFF	
12	TEST_PATTERN		0	
13	SP_AMP		0	
14	SP_PERIOD		0	

13. OPTION

No	Item	Range	Default	Remark
1	Lamp Clear			Initialize lamp usage time. Lamp Life is set to zero
2	User Reset			All user settings are set to default
3	WB Reset		OFF	Initialize the White Balance value
4	EER Reset			Clear the EEPROM
5	Lamp Life			Lamp on time counter
6	AUTO POWER		ON	The sets turns on automatically when the power cord is plugged in
7	DNIe Demo	ON/OFF	ON	DNIe Demo function selection
8	Lamp Control	Dynamic/Normal	Dynamic	Dynamic, Always
9	MUTE TIME		400ms	Time which the screen will be black while switching channels
10	EDID WRITE			
11	DDC Protection	ON/OFF	OFF	DDC write ON/OFF selection
12	LNA Default	Auto/OFF	Auto	LNA setting OFF/Auto selection
13	PROTECT		ON	Protection ON/OFF selection
14	WATCH DOG		OFF	Watch Dog ON/OFF selection
15	WD COUNT		0	Count for Watch Dog event
16	DEBUG MODE	ATI226/GM1601	ATI226	
17	DSUB MODE		RS232	
18	BUS STOP		OFF	
19	DIGITAL→DMD			To trans the CCA data form DIGITAL to DMD
20	DMD→DGITIAL			To trans the CCA data form DMD to DIGITAL

14. SERVICE

No	Item	Range	Default	Remark
1	V-Position	0 ~ 60	30	Screen upper and lower adjustment
2	H-Position	0 ~ 120	60	Screen left and right adjustments
3	LAMP SYNC			
4	Actuator Gain [Patt1]	0~175	95	Actuator Gain adjustment
5	Actuator Gain [Patt2]	0~175	95	Actuator Gain adjustment
6	INDEX DELAY	0 ~ 1023	173	Index delay adjustment
7	FPGA		xHD3	xHD3/xHD4 selection
8	Lamp Watt		132W	
9	Lamp Select		Philips	
10	AUTO COLOR		OFF	Auto Color function execution
11	CCA			CCA menu
12	Lamp Clear			Initialize Lamp usage time
13	User Reset			All user settings are set to default

3-4 Service Adjustment

3-4-1 Vertical / Horizontal Position Adjustment

1. Turn off the power to put the unit into the STAND-BY mode.

2. In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" buttons on the Remote Control.

3. Select "Service" on the first display of the Service mode menu.

4. Select the V-position for vertical positioning and H-position for horizontal positioning by using the ▲ ▼ (Up & Down) buttons. Press the ◀ ▶ (Left or Right) buttons to adjust the screen position.

※ Do not set the V-position value to 34 or 35. (Setting to these values will cause horizontal lines on the right side of the screen.)

3-4-2 INDEX DELAY Adjustment

1. Turn off the power to put the unit into the STAND-BY mode.

2. In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" buttons on the Remote Control.

3. Select "Service" on the first display of the Service mode menu.

4. Press the ▲ ▼ (Up or Down) button to move to INDEX DELAY, then press ENTER to select.

5. The INDEX DELAY setup screen (with a red bar at the bottom of the screen) will be displayed.

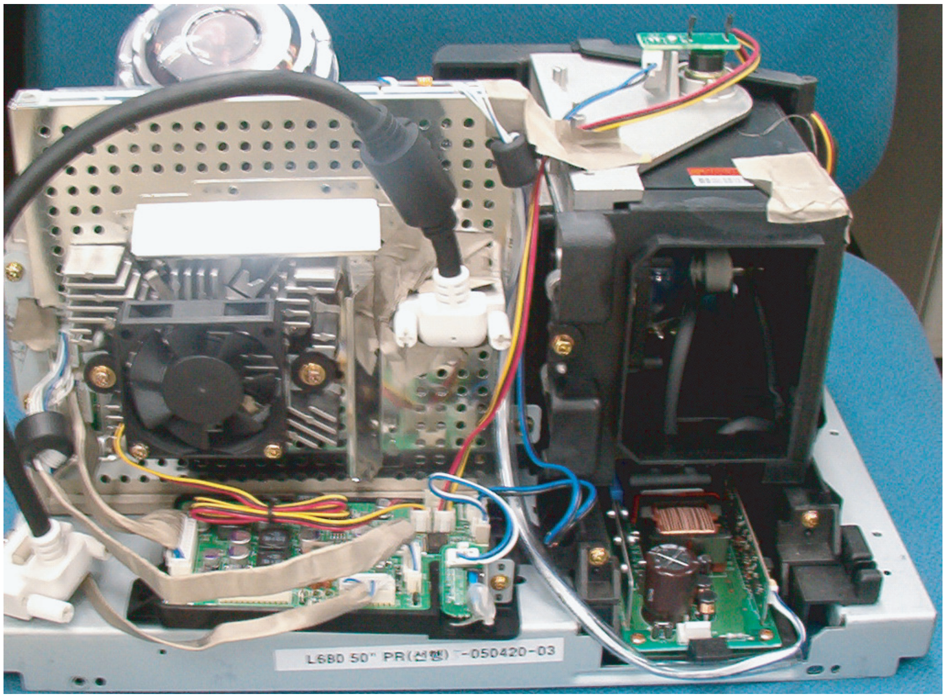
6. Press the ◀ ▶ (Left of Right) buttons to adjust. Check the red color at the bottom of the screen at its minimum and maximum values of changing from red to magenta, then adjust to the mean value.

3-4-3 CCA Adjustment Service Methods

: CCA Adjustment is needed after changing a light engine, digital board or Color Wheel.

- CCA : In DLP TV, even the same RGB color may differ depending on the light engine. CCA (Color Coordinate Adjustment) corrects the color to achieve the color accuracy. CCA performs color correction after measuring and inputting the current light engine's data on actual color coordinates for displayed Red, Green, Blue, and White color patterns, using color coordinate measuring equipment.
  At this moment, color correction is performed on the basis of previously inputted Desired Color Coordinates and Measured Color Coordinates.

1. Condition of the Service Engine



2. CCA Service Procedures

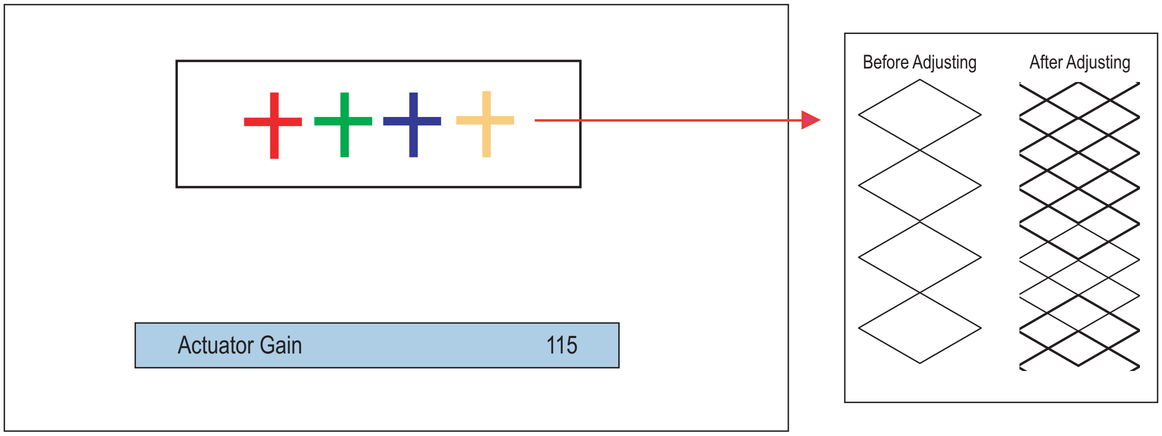
To execute CCA adjustment , perform the following steps :

1) Turn off the power to put the unit into the STAND-BY mode.
2) In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" buttons on the Remote Control.
3) From the Factory Service Mode Menu, select OPTION > DMD → DIGITAL. (This is for getting the cca data of new engine.)
   3-1) After Light Engine is changed
      - select OPTION > DMD → DIGITAL
   3-2) After Digital PCB is changed
      - select OPTION > DMD → DIGITAL
   3-3) After DMD PCB is changed
      - select OPTION > DIGITAL → DMD
   3-4) After color wheel is changed
      - select DDP1011 > INDEX DELAY
      (You can only adjust the INDEX DELAY. You can't adjust the CCA without CCA equipment(CA210).)

3-4-4 ACTUATOR GAIN Adjustment

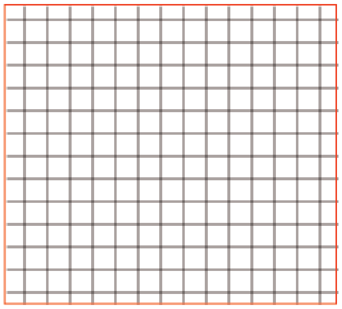
1. Before Adjustment
   1) Turn off the power to put the unit into the STAND-BY mode.
   2) In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" button on the Remote Control.
   3) Select "Service" on the first display of the Service mode menu.
   4) Press the ▲ ▼ (Up or Down) button to move to ACTUATOR GAIN1,2, then press ENTER to select.

- Actuator Gain1 : In case of controlling with Cross Pattern.



- Actuator Gain2 : In case of controlling with Crosshatch Pattern.

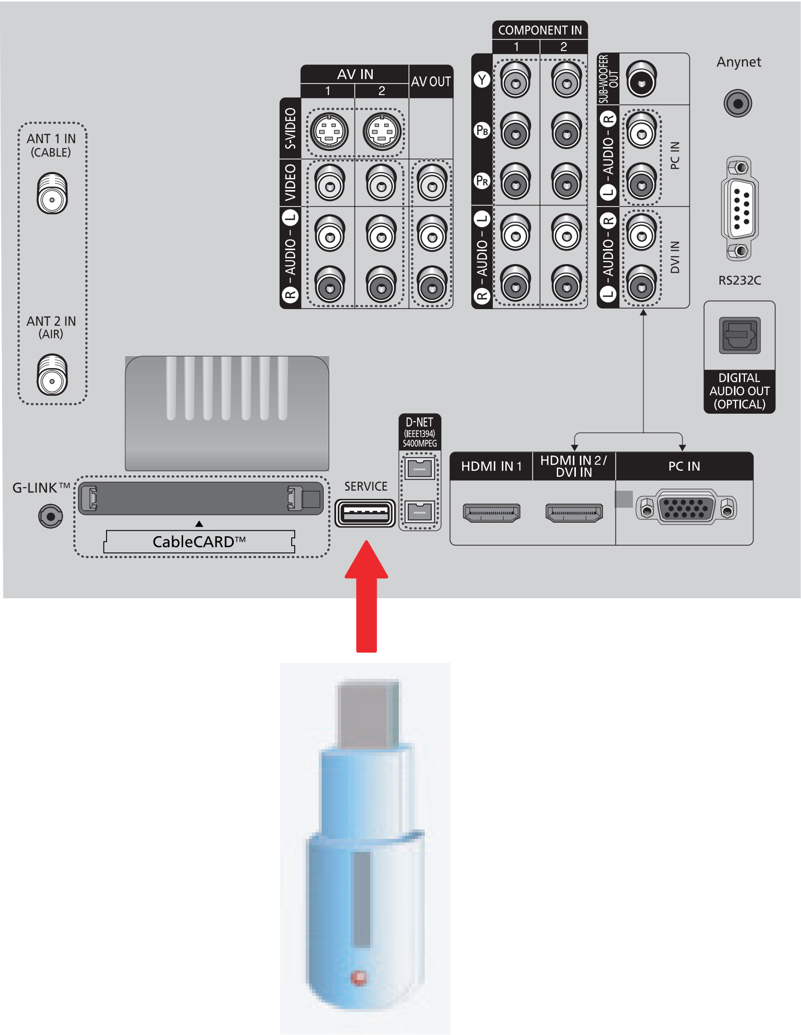
CROSSHATCH PATTERN



CAUSTION: GAIN2 is just controlled by your eye because control value doesn't appear In picture.

2. Making Adjustments
   1) As shown in the picture above, change the actuator values to eliminate saw tooth shapes.
   - To fine tune, increase the data value ensuring that you get the center between the starting and ending points of the disappearing saw tooth shape.

3-5 Software Upgrade


COMPONENT IN
1
2
AV IN
1
2
AV OUT
S-VIDEO
VIDEO
R - AUDIO - L
Y
PB
PR
R - AUDIO - L
SUB-WOOFER OUT
L - AUDIO - R
PC IN
L - AUDIO - R
DVI IN
Anynet
RS232C
ANT 1 IN (CABLE)
ANT 2 IN (AIR)
DIGITAL AUDIO OUT (OPTICAL)
D-NET (IEEE1394) S400MPEG
HDMI IN 1
HDMI IN 2 / DVI IN
PC IN
G-LINK™
SERVICE
CableCARD™

1. Prepare the USB memory stick with the built-in firmware.

2. While the TV is off, insert the USB stick into the SERVICE terminal.

3. When turning on the TV, there should be a long beeping tone and the firmware download process should start. If there is no sound from the TV, turn it off and then on again.

4. When the download is complete, there will be another long beeping tone and the TV will go into standby mode.

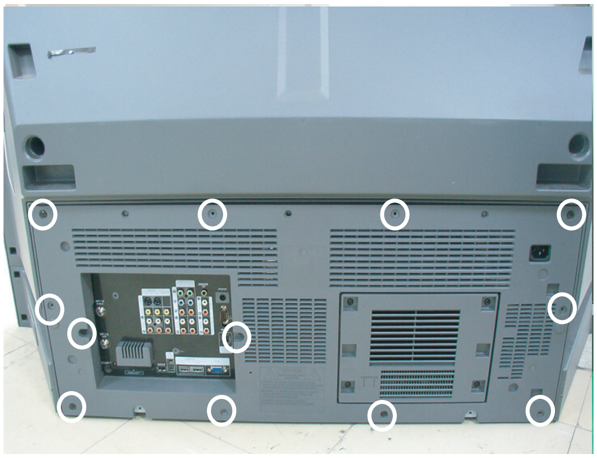
※ Check for the Firmware Version
1) Turn off the power to put the unit into the STAND-BY mode.
2) In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" buttons on the Remote Control.
3) In case entry into SERVICE MODE is unsuccessful, repeat steps 1 and 2 directly above.
4) You can check the firmware version at the bottom of the Factory menu.

T_EXCAAUSO_00XX
2005_XX_XX
T-DTVUCOM5-00XX
T-XMENAUS0_00XX

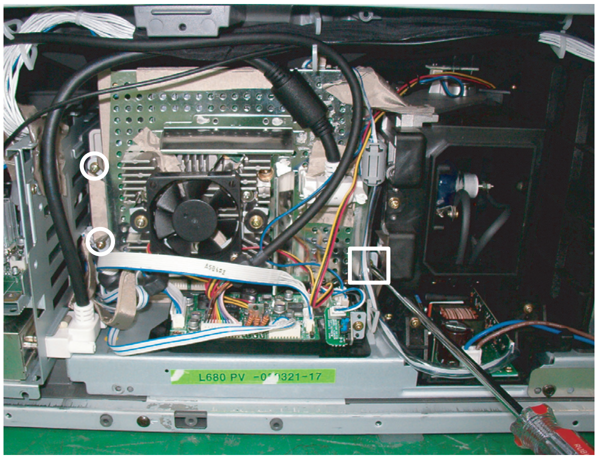
3-6 Replacements & Calibration

3-6-1 Tilt the Screen

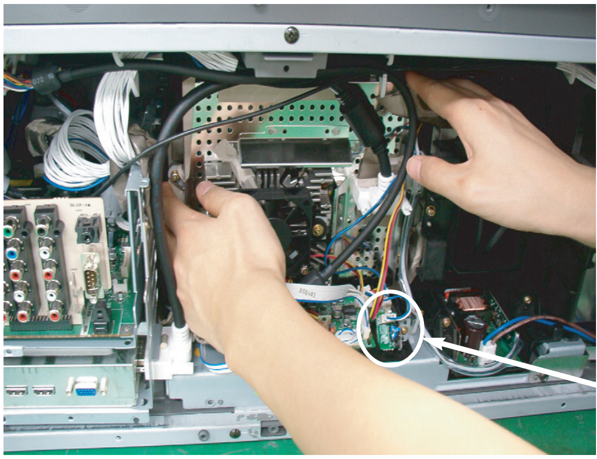
1. Remove the 12 point screws. Remove the Bottom cover.
   Fix the safety switch on the right with tape so that the set can be turned on after removing the bottom cover.
   : TH,B,M4.L15,BLK,SWRCH18A



2. Remove the 3 points screws.
   - * Left 2 points screws
     : PWH,S,M3,L8,ZPC(YEL),SWRCH18A
   - * Right 1 points screw
     : PWH,S,M3,L7,ZPC(YEL),SWRCH18A

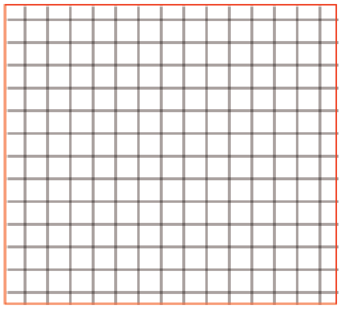


3. Turn off the power to put the unit into the STAND-BY mode.
   In order to enter the Service Mode, Press "Mute" → "1" → "8" → "2" → "POWER" buttons on the Remote Control.
   Select "DDP1011(L8)" on the first display of the Service Mode menu. Press the ▲▼ (Up or Down) buttons, then press ENTER to select. Press the ▶ (Right) button until you see the CROSSHATCH PATTERN.
   Then, adjust the screen position, by holding both of the upper corners of the DMD board.



Fix the safety switch on the right with tape so that the set can be turned on after removing the bottom cover.

CROSSHATCH PATTERN



※ Even when those screws are removed, the board does not separate it can be moved within the adjustable range because there are spring screws at the center holding it.

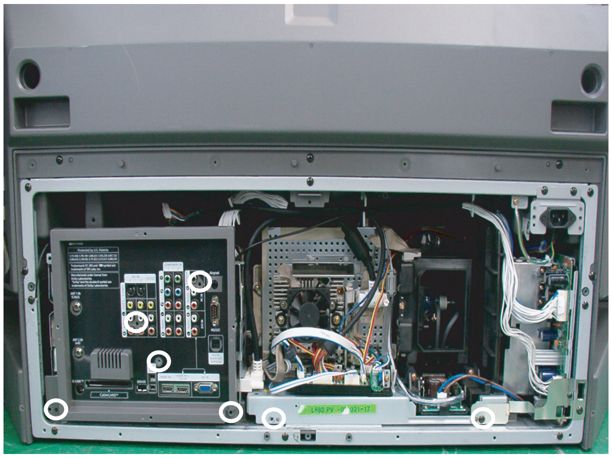
※ When adjusting the screen, it is better for two people to work together.
One person should adjust the picture position while the other person looks at the screen.

※ The movement direction of the board and the picture are opposite.
- When the board is lifted upward, the screen descends down.
- When it is tilted to the left, the screen tilts to the right.

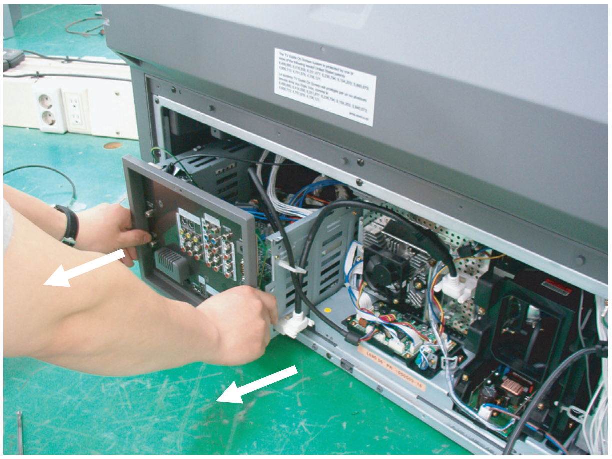
※ When the picture adjustment is completed:
First, tighten the two screws on the left of the DMD board and then slowly tighten the one screw on the bottom right.
Be careful not to touch the board while tightening the screws.
(When using an electric-powered screwdriver, be careful that the torque is not too high.)

3-6-2 Align the Focus

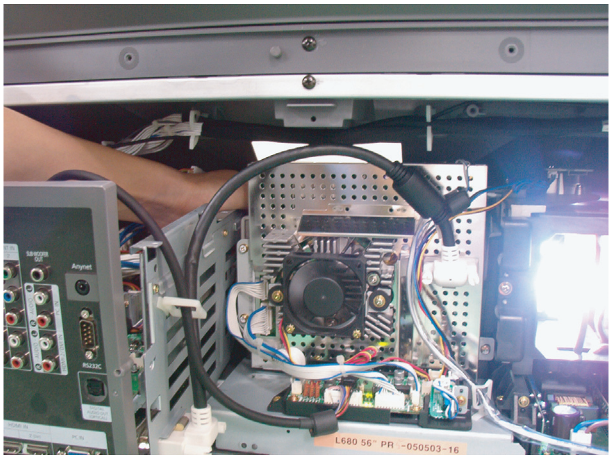
1. Remove the 7 screws.
   : TH,B,M4.L15,BLK,SWRCH18A



2. Pull out the holder Chassis



3. Adjust the Lens Focus

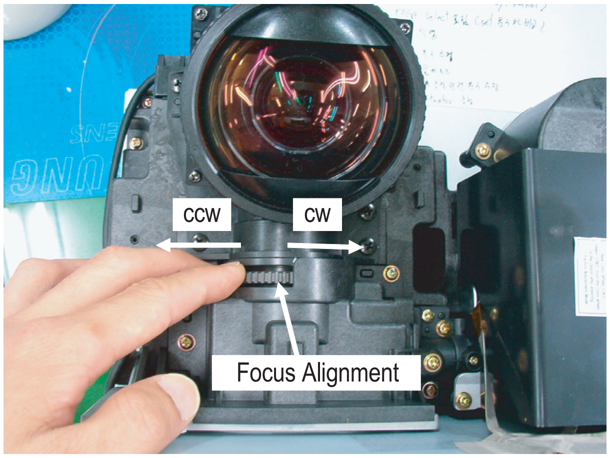


1) Input a Crosshatch pattern or enter service mode and use the internal generated patterns.

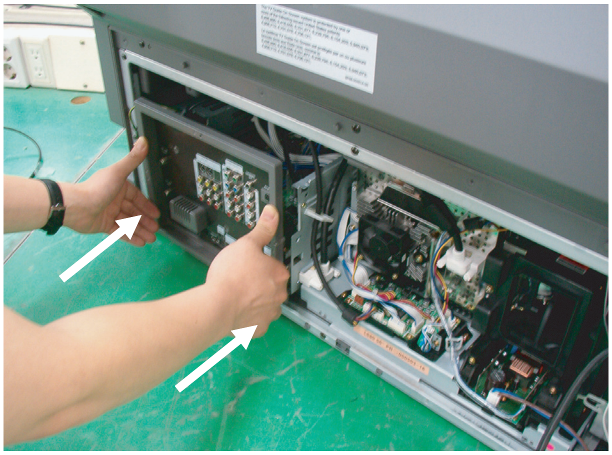
2) Adjust the focus alignment dial of the Projection Lens Clockwise or Counter Clockwise (See picture in step 4) until the picture is clear.

3) Since the alignment is done from the rear use a mirror or a second person to confirm the adjustment is complete.

4. Adjust the Lens focus.



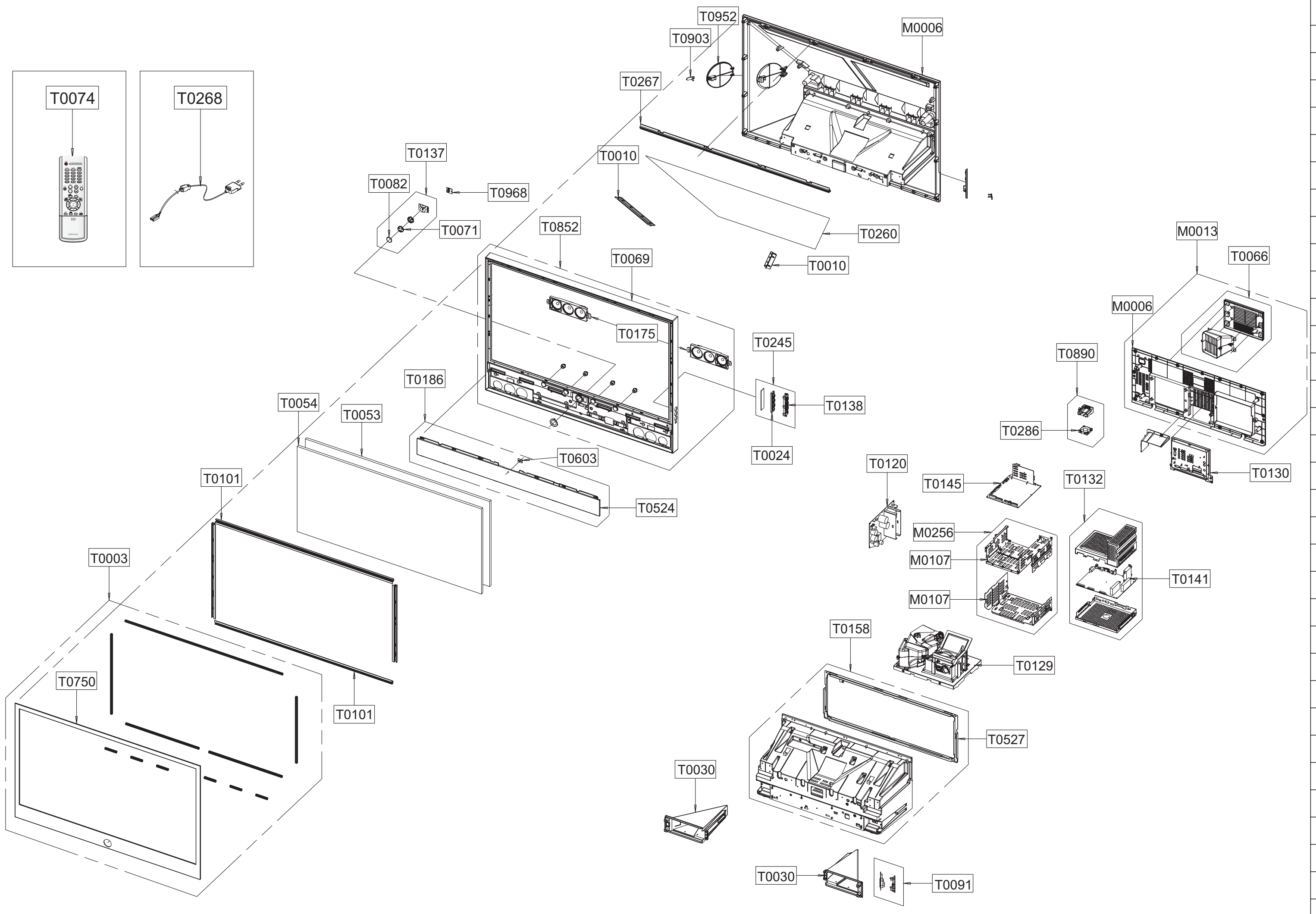
5. Insert Engine Ass'y with accuracy.



4. Exploded View & Part List

4-1 HLR5078WX/XAA

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr



Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
M0006	BP63-00410A	COVER-REAR	50L6,HIPS,HB,GR503,TOP	1	S.A	
M0006	BP63-00401A	COVER-REAR BOTTOM	50L6,HIPS,V0,GRAY	1	S.N.A	
M0013	BP96-00938C	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A	
M0107	BP61-00892A	BRACKET-PCB	50L3,SECC,T1.0,NTR,TOP(BUILT	1	S.N.A	
M0107	BP61-00893A	BRACKET-PCB	50L3,SECC,T1.0,NTR,BOT(BUILT	1	S.N.A	
M0256	BP96-00849F	ASSY BRACKET P-MAIN PCB	L3,L6,L7,SECC,T1	1	S.A	
T0003	BP96-01058A	ASSY COVER P-FRONT	50L8,ABS+PMMA,HB,BK23	1	S.A	
T0010	BP96-00940A	ASSY HOLDER P-MIRROR LEFT	L6 ALL, L8,HIP	1	S.A	
T0010	BP96-00941A	ASSY HOLDER P-MIRROR RIGHT	L6 ALL, L8,HI	1	S.A	
T0024	BP64-00384B	KNOB-FAMILY	L6,ABS,HB,GRAY,SVM-3012	1	S.N.A	
T0030	BP96-01059A	ASSY COVER P-SIDE	50L8,HIPS,HB,GR503,LEF	1	S.A	
T0030	BP96-01060A	ASSY COVER P-SIDE	50L8,HIPS HB,GR503,RIG	1	S.A	
T0053	BP67-00140A	SCREEN FRESNEL	50W,1126*646,1.5T	1	S.A	
T0054	BP67-00137A	SCREEN LENTI	50W,1126*646,2.4T	1	S.A	
T0066	BP96-00535E	ASSY COVER P-DUCT	L6,HIPS HB,GRY	1	S.N.A	
T0069	BP63-00465A	COVER-MIDDLE	50L8,HIPS,HB,GRAY	1	S.N.A	
T0071	BP64-00532A	INDICATOR-LED	L8,ABS,HB,BLK	1	S.A	
T0074	BP59-00071B	REMOCON	HURRICANE,TM76A,200*54*30,ZILOG	1	S.A	
T0082	BP64-00309B	WINDOW LED	50L3,ACRYL,2.0,half-mirror,SE	1	S.N.A	
T0091	BP94-02231A	ASSY PCB MISC-A/V SIDE	HLR5078(L8),L65A,	1	S.N.A	
T0101	BP61-00960A	BRACKET-SCREEN TB	50L8,AL6063 EXTR	1	S.N.A	
T0101	BP61-00960A	BRACKET-SCREEN TB	50L8,AL6063 EXTR	1	S.N.A	
T0120	BP94-02215B	ASSY PCB POWER	HLR5067,HURRICANE,L64B,11	1	S.A	
T0129	BP96-01198A	ASSY ENGINE P-DLP	50L8,PHILIPS 120W,E22	1	S.A	
T0130	BP96-01061A	ASSY COVER P-TERMINAL BOARD	50L8,HIPS V0	1	S.N.A	
T0132	BP94-02229A	ASSY PCB MISC-DIGITAL	HLR5078(L8),L65A,E	1	S.A	
T0137	BP94-01758A	ASSY PCB MISC-LED	HLR5078WX/XAA,L65A,EXC	1	S.N.A	
T0138	BP64-00383B	KNOB-HOLDER	L6,ABS,HB,GRAY,SVM3012	1	S.N.A	
T0141	BP97-00961A	ASSY SMD-DIGITAL	HLR5078(L8),L65A,EXCALI	1	S.N.A	
T0145	BP94-02228A	ASSY PCB MISC-ANALOG	HLR5078(L),L65A,EXC	1	S.A	
T0158	BP96-00937C	ASSY COVER P-MAIN	L6 ALL,HIPS, V0,GR503	1	S.A	
T0175	AA96-02816A	ASSY SPEAKER P	8ohm,L6(DLP),50,20W,TW+WF	2	S.A	
T0186	BP96-01056A	ASSY COVER P-GRILLE	50L8,HIPS HB,GR503,S	1	S.N.A	
T0245	BP94-01712C	ASSY PCB MISC-KEY CONTROL	50,56,L65A,EXC	1	S.N.A	
T0260	BP67-00096A	MIRROR	MIRROR FRONT 50",GLASS,1100X580X5	1	S.A	
T0267	BP61-00910A	BRACKET-MIRROR TOP	50L6,AL6063 EXTR	1	S.N.A	
T0268	3903-000144	CBF-POWER CORD	DT,US,BP3/Y,U(IEC C13-RA)	1	S.A	
T0286	BP31-00019A	FAN-DC	F5010L12B2-RS WS,ROBOCOP,PBTP (UL	1	S.A	
T0524	BP63-00466A	COVER-GRILLE	50L8,HIPS,HB,GRAY	1	S.N.A	
T0527	BP61-01045A	BRACKET-COVER	L6,SECC-1,T1.2,NTR,BOTTOM	1	S.N.A	
T0603	BP64-00530A	WINDOW-RMC	L8,ACRYL,,DIFFUSER 0.2%	1	S.N.A	
T0750	BP63-00464A	COVER-MASK	50L8,ABS+PMMA,HB,BK23,STEAM-M	1	S.N.A	
T0852	BP96-01057A	ASSY COVER P-MIDDLE	50L8,HIPS HB,GR503,S	1	S.N.A	
T0890	BP96-00855A	ASSY FAN P	1B1S,50*50*0.5,1.9,0.19,24,-1	1	S.N.A	
T0903	BP61-00528A	HOLDER-DUST	50L3,HIPS HB,GRAY	2	S.N.A	
T0952	BP63-00294B	COVER DUST-ASSY	L6,HIPS,HB,GRAY	2	S.N.A	
T0968	BP94-01759A	ASSY PCB MISC-REMOCON	HLR5078(L8),L65A,E	1	S.N.A	

4-2 HLR5678WX/XAA

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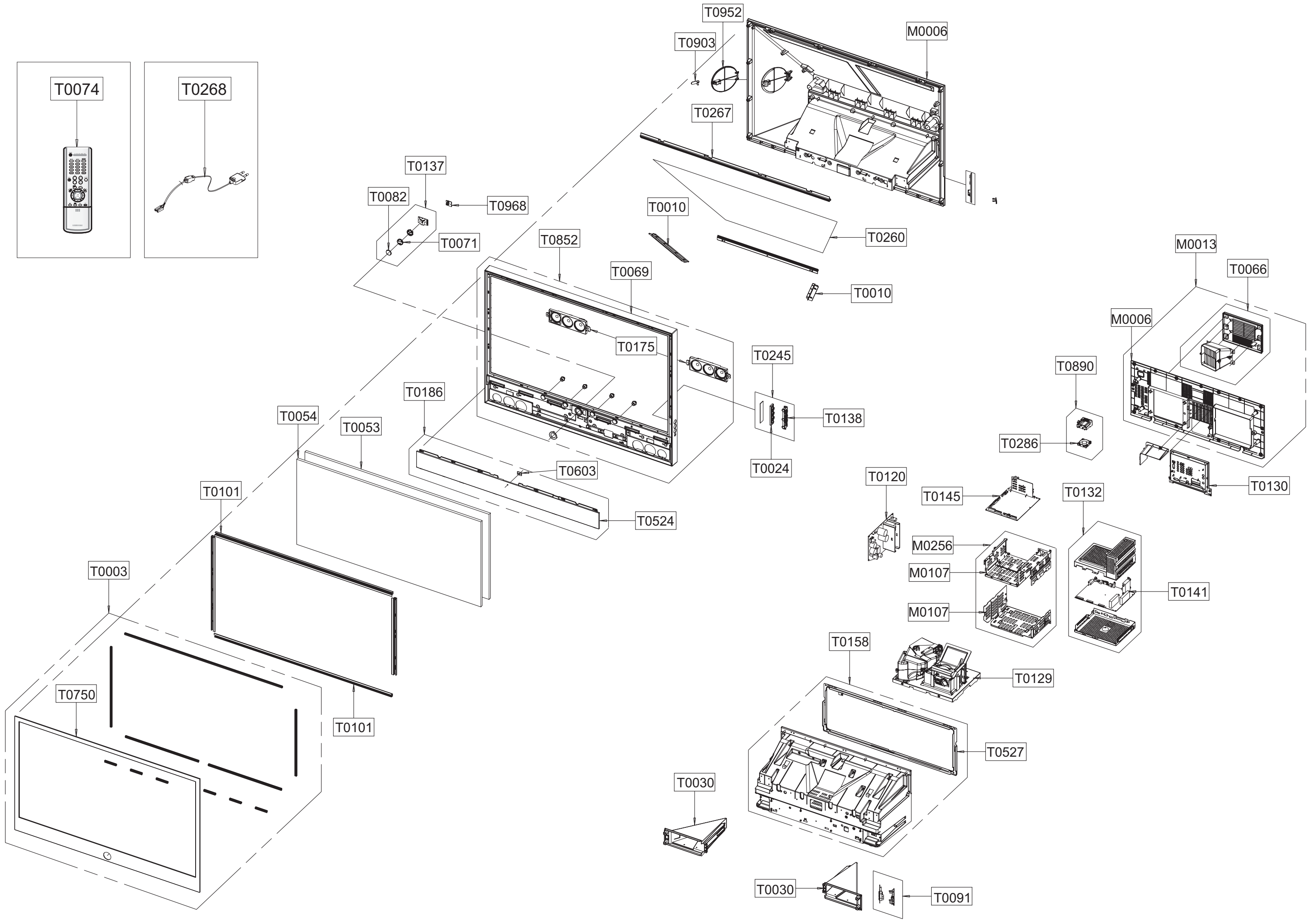
URL:http://itself.sec.samsung.co.kr



Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
M0006	BP63-00417A	COVER-REAR	56L6,HIPS,HB,GRAY,TOP	1	S.N.A	
M0006	BP63-00401A	COVER-REAR BOTTOM	50L6,HIPS,V0,GRAY	1	S.N.A	
M0013	BP96-00938C	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A	
M0107	BP61-00892A	BRACKET-PCB	50L3,SECC,T1.0,NTR,TOP(BUILT	1	S.N.A	
M0107	BP61-00893A	BRACKET-PCB	50L3,SECC,T1.0,NTR,BOT(BUILT	1	S.N.A	
M0256	BP96-00849F	ASSY BRACKET P-MAIN PCB	L3,L6,L7,SECC,T1	1	S.A	
T0003	BP96-01213A	ASSY COVER P-FRONT	56L8,ABS+PMMA,HB,BK23	1	S.A	
T0010	BP96-00940A	ASSY HOLDER P-MIRROR LEFT	L6 ALL, L8,HIP	1	S.A	
T0010	BP96-00941A	ASSY HOLDER P-MIRROR RIGHT	L6 ALL, L8,HI	1	S.A	
T0024	BP64-00384B	KNOB-FAMILY	L6,ABS,HB,GRAY,SVM-3012	1	S.N.A	
T0030	BP96-01219A	ASSY COVER P-SIDE	56L8,HIPS HB,GR503,L	1	S.A	
T0030	BP96-01220A	ASSY COVER P-SIDE	56L8,HIPS HB,GR503,RIG	1	S.A	
T0053	BP67-00184A	SCREEN FRESNEL	56W,1270*728,T1.5	1	S.A	
T0054	BP67-00183A	SCREEN LENTI	56W,1270*728,T2.5	1	S.A	
T0066	BP96-00535E	ASSY COVER P-DUCT	L6,HIPS HB,GRY	1	S.N.A	
T0069	BP63-00472A	COVER-MIDDLE	56L8,HIPS,HB,GRAY	1	S.A	
T0071	BP64-00532A	INDICATOR-LED	L8,ABS,HB,BLK	1	S.A	
T0074	BP59-00071B	REMOCON	HURRICANE,TM76A,200*54*30,ZILOG	1	S.A	
T0082	BP64-00309B	WINDOW LED	50L3,ACRYL,2.0,half-mirror,SE	1	S.N.A	
T0091	BP94-02231A	ASSY PCB MISC-A/V SIDE	HLR5078(L8),L65A,	1	S.N.A	
T0101	BP61-00965A	BRACKET-SCREEN TB	56L8,AL6063 EXTR	1	S.N.A	
T0101	BP61-00965A	BRACKET-SCREEN TB	56L8,AL6063 EXTR	1	S.N.A	
T0120	BP94-02215B	ASSY PCB POWER	HLR5067,HURRICANE,L64B,11	1	S.A	
T0129	BP96-01198B	ASSY ENGINE P-DLP	56L8,PHILIPS 120W,E22	1	S.A	
T0130	BP96-01061A	ASSY COVER P-TERMINAL BOARD	50L8,HIPS V0	1	S.N.A	
T0132	BP94-02229A	ASSY PCB MISC-DIGITAL	HLR5078(L8),L65A,E	1	S.A	
T0137	BP94-01758A	ASSY PCB MISC-LED	HLR5078WX/XAA,L65A,EXC	1	S.N.A	
T0138	BP64-00383B	KNOB-HOLDER	L6,ABS,HB,GRAY,SVM3012	1	S.N.A	
T0141	BP97-00961A	ASSY SMD-DIGITAL	HLR5078(L8),L65A,EXCALI	1	S.N.A	
T0145	BP94-02228A	ASSY PCB MISC-ANALOG	HLR5078(L),L65A,EXC	1	S.A	
T0158	BP96-00937C	ASSY COVER P-MAIN	L6 ALL,HIPS, V0,GR503	1	S.A	
T0175	AA96-02816A	ASSY SPEAKER P	8ohm,L6(DLP),50,20W,TW+WF	2	S.A	
T0186	BP96-01217A	ASSY COVER P-GRILLE	56L8,HIPS,HB,GR503,S	1	S.N.A	
T0245	BP94-01712C	ASSY PCB MISC-KEY CONTROL	50,56,L65A,EXC	1	S.N.A	
T0260	BP67-00097A	MIRROR	Front Mirror 56",GLASS,1279X650X6	1	S.A	
T0267	BP61-00913A	BRACKET-MIRROR TOP	56L6,AL6063 EXTR	1	S.N.A	
T0268	3903-000144	CBF-POWER CORD	DT,US,BP3/Y,U(IEC C13-RA)	1	S.A	
T0286	BP31-00019A	FAN-DC	F5010L12B2-RS WS,ROBOCOP,PBTP (UL	1	S.A	
T0524	BP63-00473A	COVER-GRILLE	56L8,HIPS,HB,GRAY	1	S.A	
T0527	BP61-01045A	BRACKET-COVER	L6,SECC-1,T1.2,NTR,BOTTOM	1	S.N.A	
T0603	BP64-00530A	WINDOW-RMC	L8,ACRYL,,DIFFUSER 0.2%	1	S.N.A	
T0750	BP63-00471A	COVER-MASK	56L8,ABS,HB,GRAY	1	S.A	
T0852	BP96-01215A	ASSY COVER P-MIDDLE	56L8,HIPS,HB,GR503,S	1	S.N.A	
T0890	BP96-00855A	ASSY FAN P	1B1S,50*50*0.5,1.9,0.19,24,-1	1	S.N.A	
T0903	BP61-00528A	HOLDER-DUST	50L3,HIPS HB,GRAY	2	S.N.A	
T0952	BP63-00294B	COVER DUST-ASSY	L6,HIPS,HB,GRAY	2	S.N.A	
T0968	BP94-01759A	ASSY PCB MISC-REMOCON	HLR5078(L8),L65A,E	1	S.N.A	

4-3 HLR6178WX/XAA

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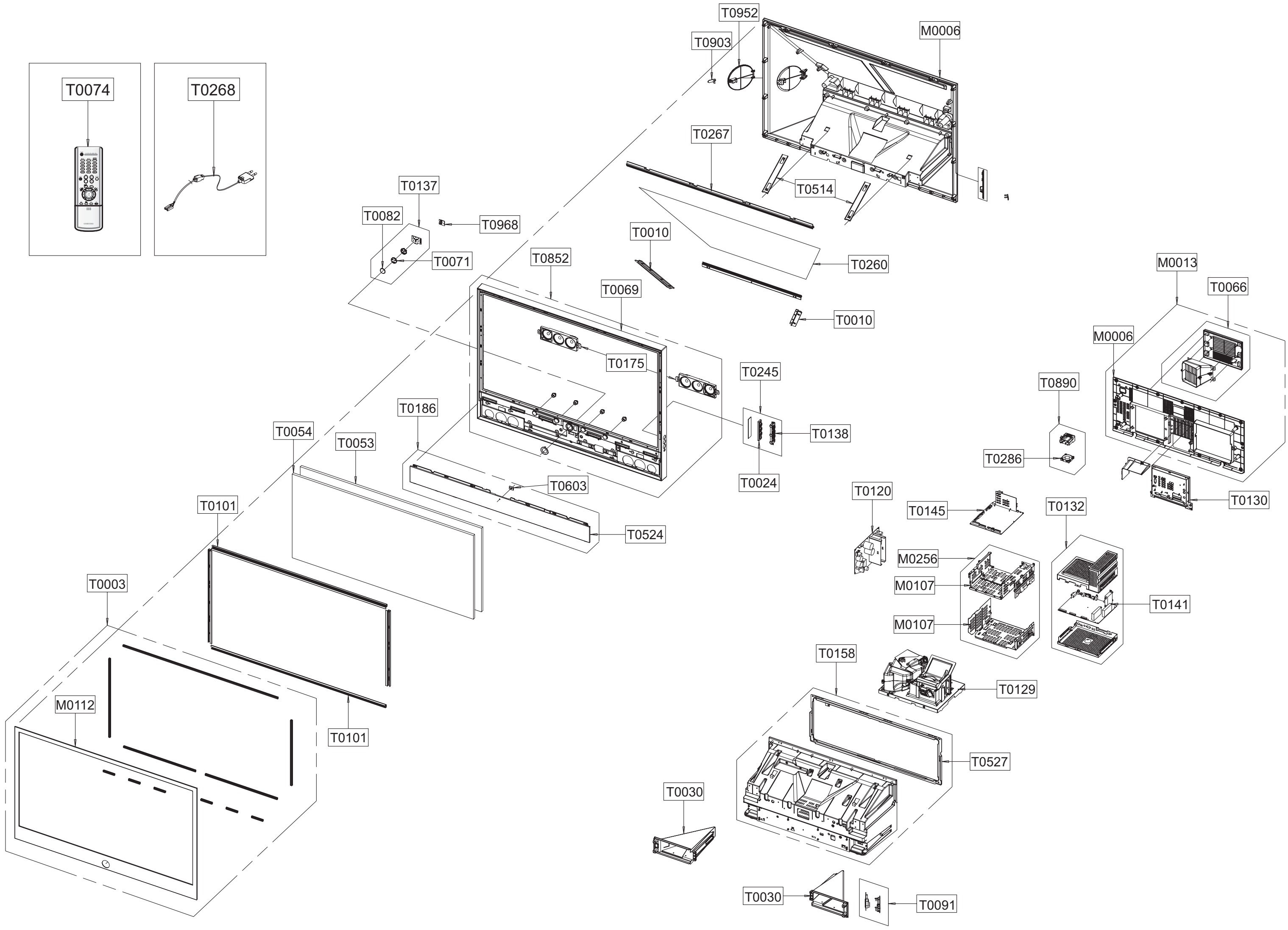
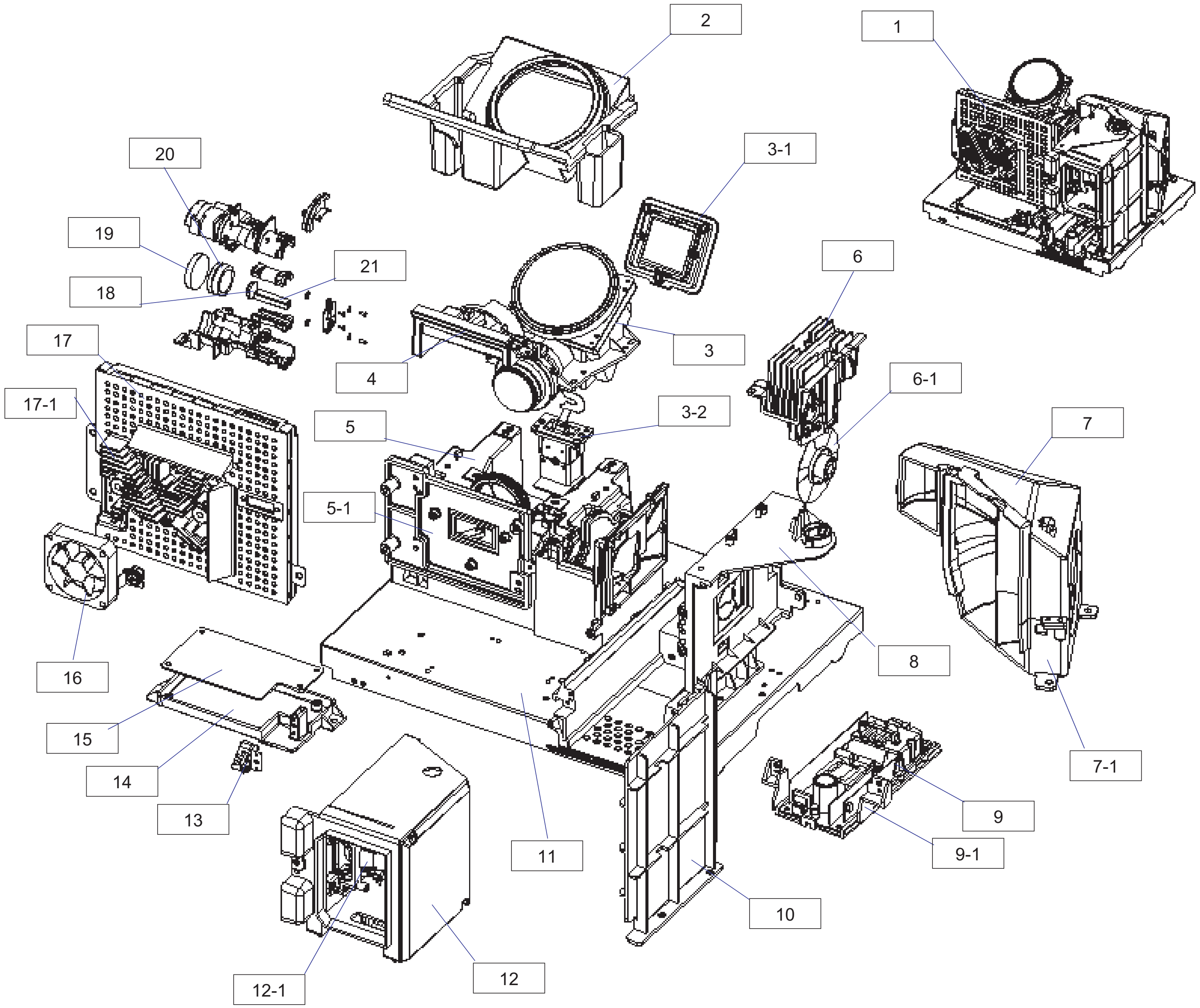


Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
M0006	BP63-00424A	COVER-REAR	61L6,HIPS,HB,GRAY,TOP	1	S.A	
M0006	BP63-00401A	COVER-REAR BOTTOM	50L6,HIPS,V0,GRAY	1	S.N.A	
M0013	BP96-00938C	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A	
M0107	BP61-00892A	BRACKET-PCB	50L3,SECC,T1.0,NTR,TOP(BUILT	1	S.N.A	
M0107	BP61-00893A	BRACKET-PCB	50L3,SECC,T1.0,NTR,BOT(BUILT	1	S.N.A	
M0112	BP63-00474A	COVER-FRONT	61L8,ABS,HB,GRAY	1	S.N.A	
M0256	BP96-00849F	ASSY BRACKET P-MAIN PCB	L3,L6,L7,SECC,T1	1	S.A	
T0003	BP96-01214A	ASSY COVER P-FRONT	61L8,ABS+PMMA,HB,BK23	1	S.A	
T0010	BP96-00940A	ASSY HOLDER P-MIRROR LEFT	L6 ALL, L8,HIP	1	S.A	
T0010	BP96-00941A	ASSY HOLDER P-MIRROR RIGHT	L6 ALL, L8,HI	1	S.A	
T0024	BP64-00384B	KNOB-FAMILY	L6,ABS,HB,GRAY,SVM-3012	1	S.N.A	
T0030	BP96-01221A	ASSY COVER P-SIDE	61L8,HIPS HB,GR503,LEF	1	S.A	
T0030	BP96-01222A	ASSY COVER P-SIDE	61L8,HIPS HB,GR503,RIG	1	S.A	
T0053	BP67-00165A	SCREEN FRESNEL	61W,1381*790,1.5T	1	S.A	
T0054	BP67-00164A	SCREEN LENTI	61W,1381*790,T2.5	1	S.A	
T0066	BP96-00535E	ASSY COVER P-DUCT	L6,HIPS HB,GRY	1	S.N.A	
T0069	BP63-00475A	COVER-MIDDLE	61L8,HIPS,HB,GRAY	1	S.N.A	
T0071	BP64-00532A	INDICATOR-LED	L8,ABS,HB,BLK	1	S.A	
T0074	BP59-00071B	REMOCON	HURRICANE,TM76A,200*54*30,ZILOG	1	S.A	
T0082	BP64-00309B	WINDOW LED	50L3,ACRYL,2.0,half-mirror,SE	1	S.N.A	
T0091	BP94-02231A	ASSY PCB MISC-A/V SIDE	HLR5078(L8),L65A,	1	S.N.A	
T0101	BP61-00968A	BRACKET-SCREEN TB	61L8,AL6063 EXTR	1	S.N.A	
T0101	BP61-00968A	BRACKET-SCREEN TB	61L8,AL6063 EXTR	1	S.N.A	
T0120	BP94-02215B	ASSY PCB POWER	HLR5067,HURRICANE,L64B,11	1	S.A	
T0129	BP96-01198C	ASSY ENGINE P-DLP	61L8,PHILIPS 120W,E22	1	S.A	
T0130	BP96-01061A	ASSY COVER P-TERMINAL BOARD	50L8,HIPS V0	1	S.N.A	
T0132	BP94-02229A	ASSY PCB MISC-DIGITAL	HLR5078(L8),L65A,E	1	S.A	
T0137	BP94-01758A	ASSY PCB MISC-LED	HLR5078WX/XAA,L65A,EXC	1	S.N.A	
T0138	BP64-00383B	KNOB-HOLDER	L6,ABS,HB,GRAY,SVM3012	1	S.N.A	
T0141	BP97-00961A	ASSY SMD-DIGITAL	HLR5078(L8),L65A,EXCALI	1	S.N.A	
T0145	BP94-02228A	ASSY PCB MISC-ANALOG	HLR5078(L),L65A,EXC	1	S.A	
T0158	BP96-00937C	ASSY COVER P-MAIN	L6 ALL,HIPS, V0,GR503	1	S.A	
T0175	AA96-02816A	ASSY SPEAKER P	8ohm,L6(DLP),50,20W,TW+WF	2	S.A	
T0186	BP96-01218A	ASSY COVER P-GRILLE	61L8,HIPS,HB,GR503,S	1	S.N.A	
T0245	BP94-01712D	ASSY PCB MISC-KEY CONTROL	61",L65A,EXCAL	1	S.N.A	
T0260	BP67-00098A	MIRROR	FRONT MIRROR 61",GLASS,34.85MM,13	1	S.A	
T0267	BP61-00937A	BRACKET-MIRROR TOP	61L6,AL6063 EXTR	1	S.N.A	
T0268	3903-000144	CBF-POWER CORD	DT,US,BP3/Y,U(IEC C13-RA)	1	S.A	
T0286	BP31-00019A	FAN-DC	F5010L12B2-RS WS,ROBOCOP,PBTP (UL	1	S.A	
T0514	BP61-00918A	BRACKET-SUPPORT	61L6,SECC-1,T1.6,NTR	2	S.N.A	
T0524	BP63-00476A	COVER-GRILLE	61L8,HIPS,HB,GRAY	1	S.N.A	
T0527	BP61-01045A	BRACKET-COVER	L6,SECC-1,T1.2,NTR,BOTTOM	1	S.N.A	
T0603	BP64-00530A	WINDOW-RMC	L8,ACRYL,,DIFFUSER 0.2%	1	S.N.A	
T0852	BP96-01216A	ASSY COVER P-MIDDLE	61L8,HIPS,HB,GR503,S	1	S.N.A	
T0890	BP96-00855A	ASSY FAN P	1B1S,50*50*0.5,1.9,0.19,24,-1	1	S.N.A	
T0903	BP61-00528A	HOLDER-DUST	50L3,HIPS HB,GRAY	2	S.N.A	
T0952	BP63-00294B	COVER DUST-ASSY	L6,HIPS,HB,GRAY	2	S.N.A	
T0968	BP94-01759A	ASSY PCB MISC-REMOCON	HLR5078(L8),L65A,E	1	S.N.A	

4-4 L680 Engine Ass'y



L680 Engine Exploded View List

No.	Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA
1	T0129	BP96-01198A	ASSY ENGINE P-DLP	50L8,PHILIPS 120W,E22	1	S.A
2		BP63-00522A	COVER-P-J LENS	L680,ABS,T2.5	1	S.N.A
3		BP67-00222A	LENS-P/J-ASSY	Excalibur,GLASS,NTR,FOV=93	1	S.N.A
3-1		BP64-00548A	GLASS-ACTUATOR	EXCALIBUR,MIRROR,39,34,VC	1	S.N.A
3-2		BP96-00984A	ASSY DYNAMIC BLACK P-SEM	Dynamic Black,S	1	S.N.A
4		BP63-00520A	COVER-MIRROR	L680,PC G/F20,T2.5	1	S.N.A
5		BP61-01033A	BASE-ENGINE	L680,PPS G/F30,T3.0	1	S.N.A
5-1		BP61-01037A	BASE-ENGINE	L680,MG D/C,T3.0,TOP	1	S.N.A
6		BP96-01103A	ASSY COLOR WHEEL P	L6,SERVICE	1	S.A
6-1	T0593	BP64-00475A	GLASS-COLOR WHEEL	65mm NDF,FLOAT GLASS,T	1	S.N.A
7	T0530	BP63-00510A	COVER-LAMP	SVP-50L6HR,PPS G/F30,T2.5	1	S.N.A
7-1		BP63-00517A	COVER-DUCT BOT	SVP-50L6HR,PC G/F20,T3.0	1	S.N.A
8		BP61-00726A	HOUSING-LAMP,BOTTOM 23	SVP-50L3HR,AL D/	1	S.N.A
9	T0049	BP47-00021A	LAMP-BALLAST	EUC 120 P/H11,120W,130mm ca	1	S.A
9-1		BP61-00728A	HOLDER-BALLAST 23	SVP-50L3HR,PC G/F20	1	S.N.A
10	T0530	BP63-00537A	COVER-LAMP	HURRICANE 720P,PC	1	S.N.A
11		BP61-01014A	BRACKET-ENGINE BASE	SVP-50L6HR,SECC,T1.6	1	S.N.A
12		BP96-01073A	ASSY LAMP P	L6,L8(L620,L680),~ 61",Philips 120W	1	S.A
12-1		BP47-00018A	LAMP	UHP 100W/120W 1.0,E22,65*70	1	S.N.A
13		BP91-00775A	ASSY MISC-DETECTOR S/W	HLP5063WX/XAA,L62	1	S.N.A
14		BP61-01116A	HOLDER-INTERFACE	L680,ABS,T2.5,BLACK	1	S.N.A
15		BP94-02230B	ASSY PCB S-DETECTOR-B/D	HLR5078(L8),EXCA	1	S.N.A
16	T0286	BP31-00011A	FAN-DC	AD0612LB-D72GL,P.B.T UL94-Vo,Wire	1	S.A
17	T0027	BP94-02230A	ASSY PCB S-DMD	HLR5078(L8),EXCALIBUR,L65	1	S.N.A
17-1		BP61-01043A	BRACKET-COOLER	L680,AL D/C,T4.0	1	S.N.A
18	T0134	BP67-00218A	MIRROR-LIGHT TUNNEL	Excalibur,GLASS,5.7*	1	S.N.A
19		BP67-00219A	LENS-ILL-E1	Excalibur,NBFD13,NTR,R1:INF,	1	S.N.A
20		BP67-00220A	LENS-ILL E2/E3	Excalibur,FD60,BACED5,NTR	1	S.N.A
21		BP67-00221A	LENS-ILL E4	Excalibur,BACED5,NTR,R1:57.6	1	S.N.A

5. Electrical Part List

5-1 HLR5078WX/XAA Service Item

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA
CIS3	BN40-00059A	TUNER	DNVD355BV401A,DNVD355BV401A,NTSC/Q	1	S.A
M0013	BP96-00938C	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A
M0018	BP97-00954A	ASSY MICOM	L65A,29DL32,T_SCALER_0083,050	1	S.A
M0114	BP39-00205A	CBF SIGNAL	X-MEN,24/24P,UL20276,400mm,UL	1	S.A
T0003	BP96-01058A	ASSY COVER P-FRONT	50L8,ABS+PMMA,HB,BK23	1	S.A
T0010	BP96-00940A	ASSY HOLDER P-MIRROR LEFT	L6 ALL, L8,HIP	1	S.A
T0010	BP96-00941A	ASSY HOLDER P-MIRROR RIGHT	L6 ALL, L8,HI	1	S.A
T0030	BP96-01059A	ASSY COVER P-SIDE	50L8,HIPS,HB,GR503,LEF	1	S.A
T0030	BP96-01060A	ASSY COVER P-SIDE	50L8,HIPS HB,GR503,RIG	1	S.A
T0049	BP47-00021A	LAMP-BALLAST	EUC 120 P/H11,120W,130mm ca	1	S.A
T0053	BP67-00140A	SCREEN FRESNEL	50W,1126*646,1.5T	1	S.A
T0054	BP67-00137A	SCREEN LENTI	50W,1126*646,2.4T	1	S.A
T0074	BP59-00071B	REMOCON	HURRICANE,TM76A,200*54*30,ZILOG	1	S.A
T0120	BP94-02215B	ASSY PCB POWER	HLR5067,HURRICANE,L64B,11	1	S.A
T0128	BN39-00518B	CBF SIGNAL-STEREO	SVP-50L3HR,1P,UL2464#2	1	S.A
T0129	BP96-01198A	ASSY ENGINE P-DLP	50L8,PHILIPS 120W,E22	1	S.A
T0132	BP94-02229A	ASSY PCB MISC-DIGITAL	HLR5078(L8),L65A,E	1	S.A
T0145	BP94-02228A	ASSY PCB MISC-ANALOG	HLR5078(L),L65A,EXC	1	S.A
T0158	BP96-00937C	ASSY COVER P-MAIN	L6 ALL,HIPS, V0,GR503	1	S.A
T0260	BP67-00096A	MIRROR	MIRROR FRONT 50",GLASS,1100X580X5	1	S.A
T0952	BP59-00087A	MODULE	UMX-NT-038,2IN/2OUT OOB,54~806§Ö,	1	S.A

5-2 HLR5678WX/XAA Service Item

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA
CIS3	BN40-00059A	TUNER	DNVD355BV401A,DNVD355BV401A,NTSC/Q	1	S.A
M0013	BP96-00938C	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A
M0018	BP97-00954A	ASSY MICOM	L65A,29DL32,T_SCALER_0083,050	1	S.A
T0003	BP96-01213A	ASSY COVER P-FRONT	56L8,ABS+PMMA,HB,BK23	1	S.A
T0010	BP96-00940A	ASSY HOLDER P-MIRROR LEFT	L6 ALL, L8,HIP	1	S.A
T0010	BP96-00941A	ASSY HOLDER P-MIRROR RIGHT	L6 ALL, L8,HI	1	S.A
T0030	BP96-01219A	ASSY COVER P-SIDE	56L8,HIPS HB,GR503,L	1	S.A
T0030	BP96-01220A	ASSY COVER P-SIDE	56L8,HIPS HB,GR503,RIG	1	S.A
T0049	BP47-00021A	LAMP-BALLAST	EUC 120 P/H11,120W,130mm ca	1	S.A
T0053	BP67-00184A	SCREEN FRESNEL	56W,1270*728,T1.5	1	S.A
T0054	BP67-00183A	SCREEN LENTI	56W,1270*728,T2.5	1	S.A
T0074	BP59-00071B	REMOCON	HURRICANE,TM76A,200*54*30,ZILOG	1	S.A
T0120	BP94-02215B	ASSY PCB POWER	HLR5067,HURRICANE,L64B,11	1	S.A
T0128	BN39-00518B	CBF SIGNAL-STEREO	SVP-50L3HR,1P,UL2464#2	1	S.A
T0129	BP96-01198B	ASSY ENGINE P-DLP	56L8,PHILIPS 120W,E22	1	S.A
T0132	BP94-02229A	ASSY PCB MISC-DIGITAL	HLR5078(L8),L65A,E	1	S.A
T0145	BP94-02228A	ASSY PCB MISC-ANALOG	HLR5078(L),L65A,EXC	1	S.A
T0158	BP96-00937C	ASSY COVER P-MAIN	L6 ALL,HIPS, V0,GR503	1	S.A
T0260	BP67-00097A	MIRROR	Front Mirror 56",GLASS,1279X650X6	1	S.A
T0952	BP59-00087A	MODULE	UMX-NT-038,2IN/2OUT OOB,54~806§Ö,	1	S.A

5-3 HLR6178WX/XAA Service Item

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA
CIS3	BN40-00059A	TUNER	DNVD355BV401A,DNVD355BV401A,NTSC/Q	1	S.A
M0003	BP96-00990A	ASSY COVER P-STAND	61L6,HIPS,HB,GR503,SV	1	S.A
M0013	BP96-00938C	ASSY COVER P-REAR BOTTOM	L6,HIPS V0,GR50	1	S.A
M0018	BP97-00954A	ASSY MICOM	L65A,29DL32,T_SCALER_0083,050	1	S.A
M0114	BP39-00205A	CBF SIGNAL	X-MEN,24/24P,UL20276,400mm,UL	1	S.A
M0256	BP96-00849F	ASSY BRACKET P-MAIN PCB	L3,L6,L7,SECC,T1	1	S.A
T0003	BP96-01214A	ASSY COVER P-FRONT	61L8,ABS+PMMA,HB,BK23	1	S.A
T0010	BP96-00940A	ASSY HOLDER P-MIRROR LEFT	L6 ALL, L8,HIP	1	S.A
T0010	BP96-00941A	ASSY HOLDER P-MIRROR RIGHT	L6 ALL, L8,HI	1	S.A
T0030	BP96-01221A	ASSY COVER P-SIDE	61L8,HIPS HB,GR503,LEF	1	S.A
T0030	BP96-01222A	ASSY COVER P-SIDE	61L8,HIPS HB,GR503,RIG	1	S.A
T0049	BP47-00021A	LAMP-BALLAST	EUC 120 P/H11,120W,130mm ca	1	S.A
T0053	BP67-00165A	SCREEN FRESNEL	61W,1381*790,1.5T	1	S.A
T0054	BP67-00164A	SCREEN LENTI	61W,1381*790,T2.5	1	S.A
T0074	BP59-00071B	REMOCON	HURRICANE,TM76A,200*54*30,ZILOG	1	S.A
T0120	BP94-02215B	ASSY PCB POWER	HLR5067,HURRICANE,L64B,11	1	S.A
T0128	BN39-00518B	CBF SIGNAL-STEREO	SVP-50L3HR,1P,UL2464#2	1	S.A
T0129	BP96-01198C	ASSY ENGINE P-DLP	61L8,PHILIPS 120W,E22	1	S.A
T0132	BP94-02229A	ASSY PCB MISC-DIGITAL	HLR5078(L8),L65A,E	1	S.A
T0145	BP94-02228A	ASSY PCB MISC-ANALOG	HLR5078(L),L65A,EXC	1	S.A
T0158	BP96-00937C	ASSY COVER P-MAIN	L6 ALL,HIPS, V0,GR503	1	S.A
T0260	BP67-00098A	MIRROR	FRONT MIRROR 61",GLASS,34.85MM,13	1	S.A
T0952	BP59-00087A	MODULE	UMX-NT-038,2IN/2OUT OOB,54~806§Ö,	1	S.A

MEMO

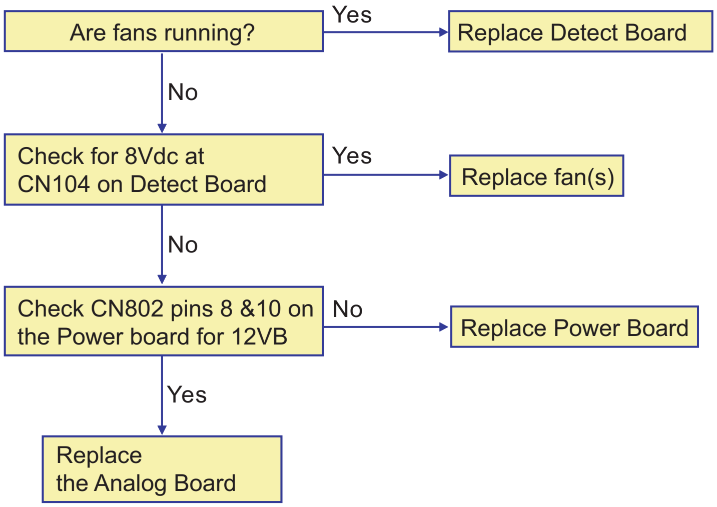
6. Troubleshooting

6-1 Checkpoints by Error Mode

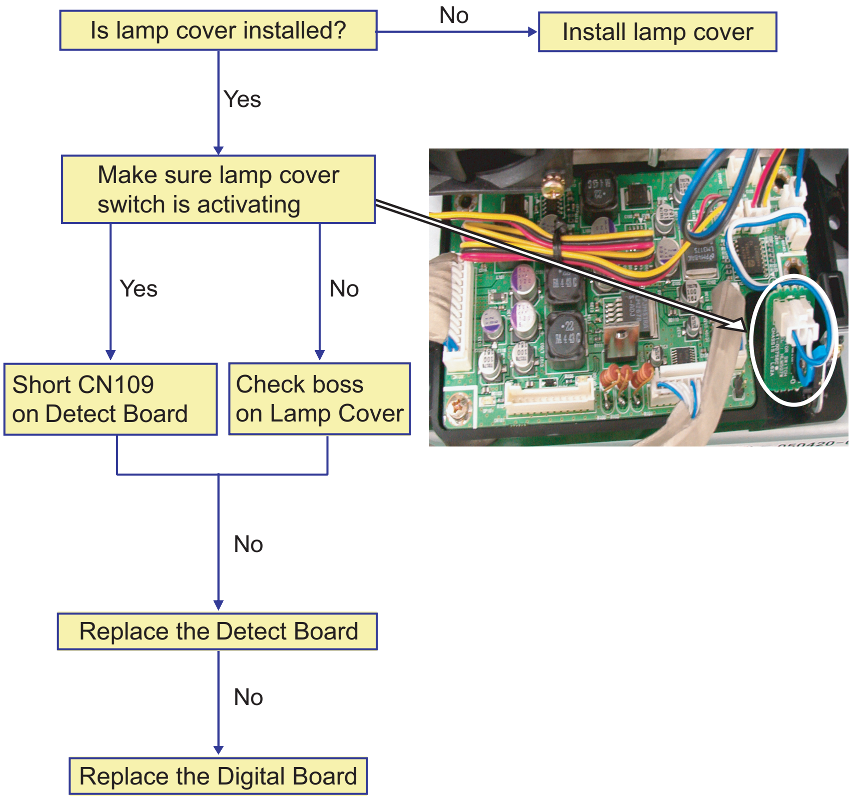
1. Power Light: Check the master switch (ON/OFF) and the fuse to see if they are operating.

2. LED Blinking: See the basic LED checklist in 6-2-1.

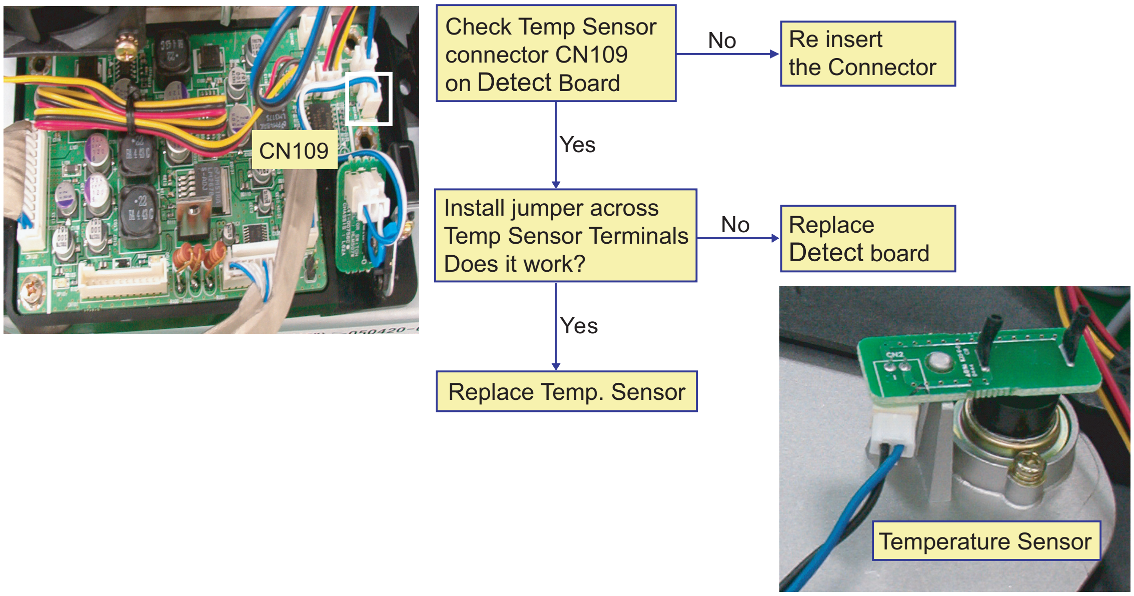
< Blinking Temp & Timer LED >


Are fans running?
Yes
Replace Detect Board
No
Check for 8Vdc at CN104 on Detect Board
Yes
Replace fan(s)
No
Check CN802 pins 8 &10 on the Power board for 12VB
No
Replace Power Board
Yes
Replace the Analog Board

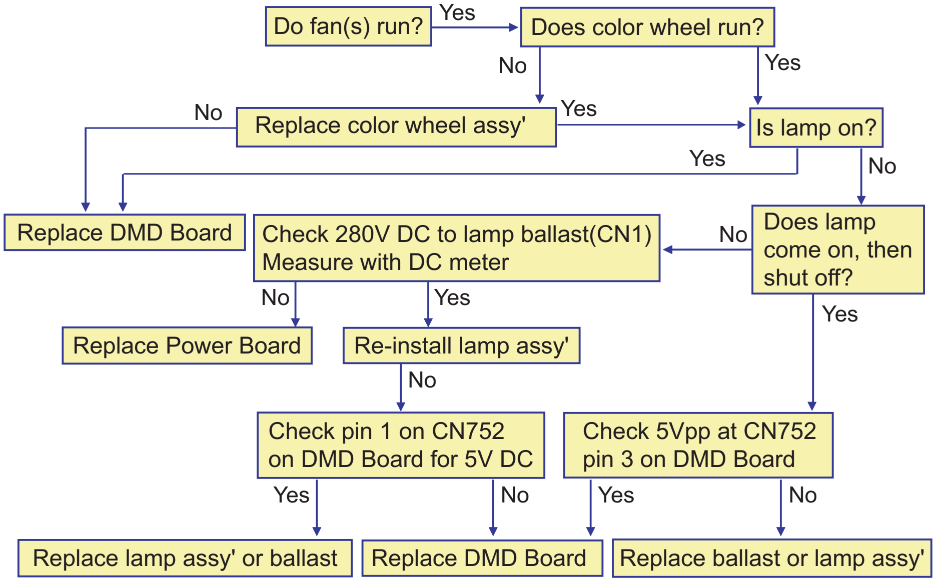
< Blinking Lamp and Temp LEDs >


Is lamp cover installed?
No
Install lamp cover
Yes
Make sure lamp cover switch is activating
Yes
No
Short CN109 on Detect Board
Check boss on Lamp Cover
No
Replace the Detect Board
No
Replace the Digital Board

< Blinking Temp LED >


CN109
Check Temp Sensor connector CN109 on Detect Board
No
Re insert the Connector
Yes
Install jumper across Temp Sensor Terminals Does it work?
No
Replace Detect board
Yes
Replace Temp. Sensor
Temperature Sensor

A blinking lamp LED is the most common failure indication. It can be caused by no lamp, no color wheel, no fan(s), or other defective components.


Do fan(s) run?
Yes
Does color wheel run?
No
Yes
No
Replace color wheel assy'
Yes
Is lamp on?
Yes
No
Replace DMD Board
Check 280V DC to lamp ballast(CN1) Measure with DC meter
No
Does lamp come on, then shut off?
No
Yes
Yes
Replace Power Board
Re-install lamp assy'
No
Check pin 1 on CN752 on DMD Board for 5V DC
Check 5Vpp at CN752 pin 3 on DMD Board
Yes
No
Yes
No
Replace lamp assy' or ballast
Replace DMD Board
Replace ballast or lamp assy'

3. Noise:
Internal noise may be caused by a foreign substance on the fan or driving device.
For a DLP TV, the lamp fan, DMD board fan and color wheel are vulnerable to noise. Sometimes the connector wire around the lamp or DMD fan makes contact with the fan, while the color wheel is protected inside the module and cannot make contact with any nearby wires. However the color wheel sensor or the drive motor may cause noise by making contact with the color wheel.
As the color wheel uses an air bearing system, it has a very slight possibility of creating internal noise.
When irregular noise occurs for no particular reason, check the inside of the TV for any foreign substances.
The DLP projection TV may cause noise as the physical screen is empty inside, causing a resonance to a particular frequency.
Thus a low vibration is not a malfunction.
Any 'creaking' noise is mostly from the structure of the device itself. A short, harsh noise may occur from a distortion or malformation due to thermal expansion between the metal joints, screws and loaded parts, respectively. Any intermittent 'creaking' noise can be removed by loosening the screws.

4. A black screen with the lamp on: Replace the DMD board.

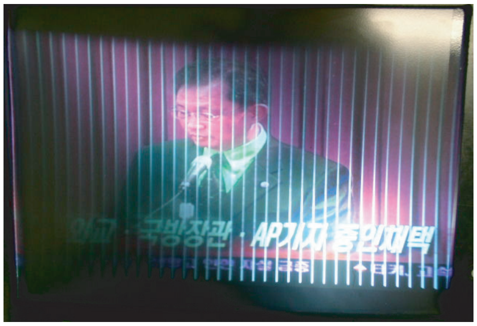
5. Line Pattern: Regular line patterns occur vertically or horizontally: Replace the DMD board.

6. Voice Distortion: Replace the analog board.

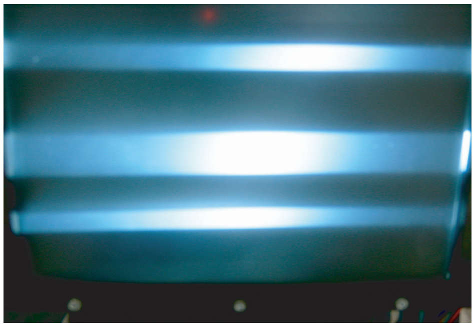
7. Outside Light: This is not a product malfunction, but a possible installation or human error. This occurs when the projected light from the surrounding illumination reflects onto the screen. This disappears as the TV starts operating and the TV lamp gets brighter. However, you can avoid outside light by changing the position of the TV or the installation angle.
Decreasing the illumination or changing the indoor lighting may work.

8. Screen Flip-over:
Enter Factory mode in DDP1011 and perform H-Flip (flip horizontally) and V-Flip (flip vertically).
The screen will flip over horizontally or vertically.

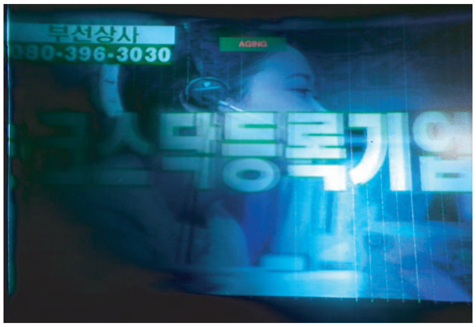
9. Other Screen Errors:



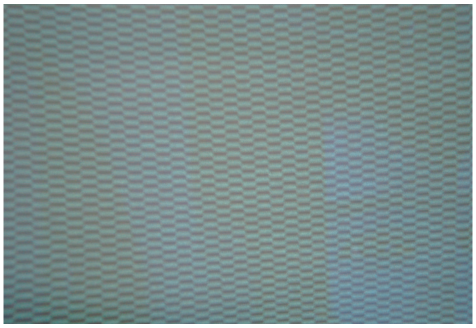
▶ 40 Vertical lines 16 pixels wide:
DDP1011 or BGA, DMD panel interference.
→ Replace the DMD board



▶ Horizontal Bar or No Raster:
Error in DDP1011 or the DMP panel.
→ Replace the DMD board



▶ Dotted Vertical Bar:
Error in Rambus Dram(IC 403) or the soldering
→ Replace the DMD board



▶ Beehive mosaic patterns all over the screen:
Error in the LVDS Receiver (IC 601) or the soldering
The H sync signals are not transferred to DDP1011.
→ Replace the DMD board.

6-1-1 Video Circuit Error Checking

■ Basics:

- The DDP1011 on the DMD board has a feature to display internal test patterns.
- DNIe, which is an end port in the digital board, has a feature to display internal test patterns.
- The analog board sends signals to ADV7401 on the digital board.
- The analog board is the first output and the digital board is the second one, followed by DMD, which is the final one.

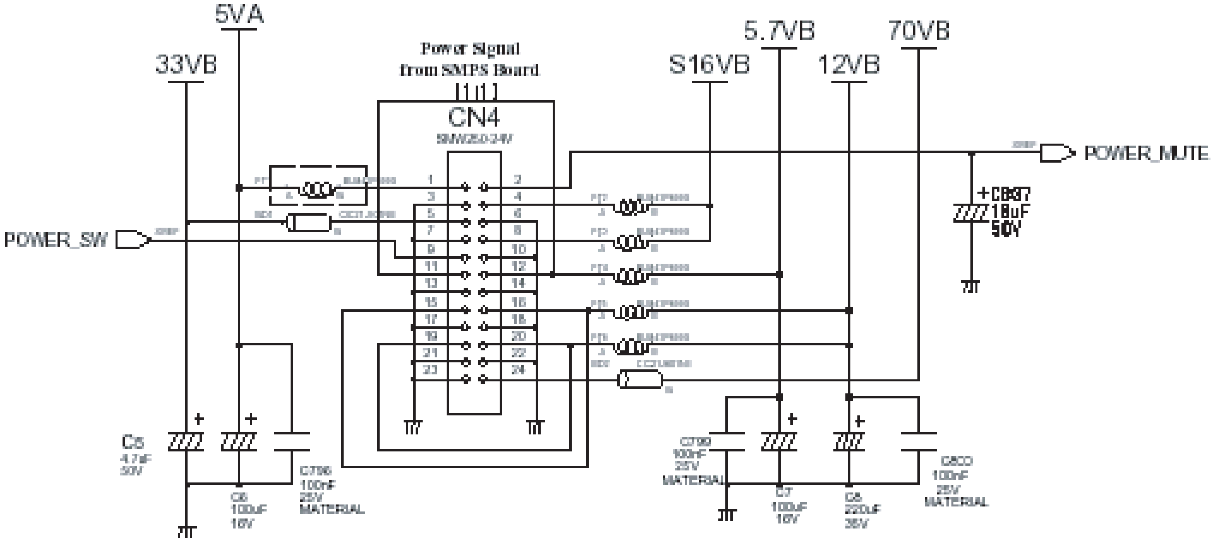
■ Diagnosis By Module

1. Access Service Mode
(In Standby mode, press "Mute", "1", "8", "2" and "Power" to turn the screen on and enter service mode)

2. Check if there is an error in the DMD board
DDP1011 → TEST PATTERN → Press the right arrow key:
Options of FULL WHITE, BLACK, RED, GREEN and BLUE PATTERN are displayed on the screen.
If "Pattern" does not appear, this is a DMD board error.

3. Check if there is an error in the digital board before the DMD.
When the DMD board has been determined to be error free based on the test patterns:
FACTORY MODE → DNIe → TEST PATTERN normal display: no error in the digital board.
If "Pattern" does not appear, you have to check a Analog board first, and check a DMD Board second, next check a Digital Board.

4. Check if there is an error in the Analog Board.
Check for a power signal from the analog to the digital boards. (See the circuit diagram below).


5VA
33VB
Power Signal from SMPS Board
CN4
SMW250-24V
S16VB
5.7VB
12VB
70VB
POWER_MUTE
POWER_SW
CB37 10uF 50V
C5 4.7uF 50V
C6 100uF 16V
C796 100nF 25V MATERIAL
C799 100nF 25V MATERIAL
C7 100uF 16V
C8 220uF 35V
C800 100nF 25V MATERIAL
1
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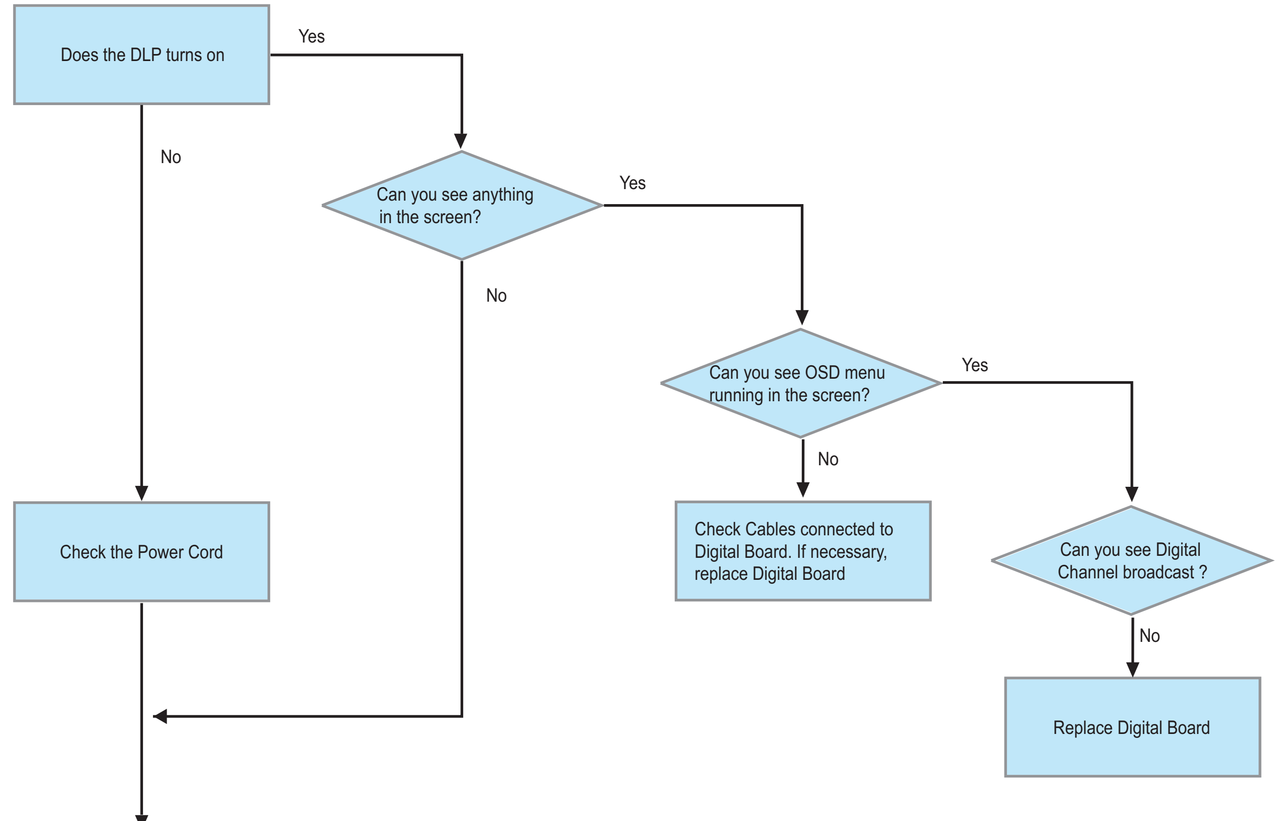
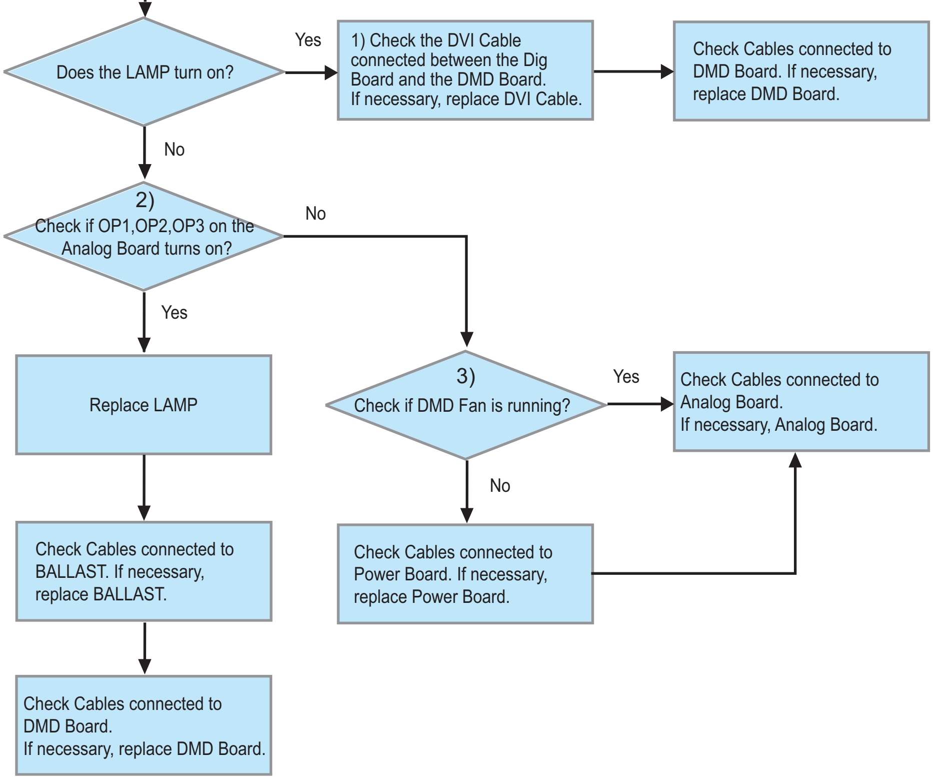
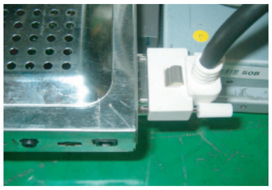
6-1-2 Flow Chart for Malfunction

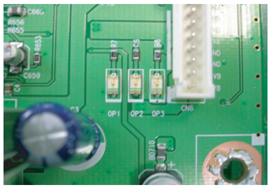

Does the DLP turns on
Yes
No
Can you see anything in the screen?
Yes
No
Can you see OSD menu running in the screen?
Yes
No
Check Cables connected to Digital Board. If necessary, replace Digital Board
Can you see Digital Channel broadcast ?
No
Replace Digital Board
Check the Power Cord


Does the LAMP turn on?
Yes
1) Check the DVI Cable connected between the Dig Board and the DMD Board. If necessary, replace DVI Cable.
Check Cables connected to DMD Board. If necessary, replace DMD Board.
No
2) Check if OP1,OP2,OP3 on the Analog Board turns on?
No
Yes
Replace LAMP
3) Check if DMD Fan is running?
Yes
Check Cables connected to Analog Board. If necessary, Analog Board.
No
Check Cables connected to BALLAST. If necessary, replace BALLAST.
Check Cables connected to Power Board. If necessary, replace Power Board.
Check Cables connected to DMD Board. If necessary, replace DMD Board.

1) DVI Cable



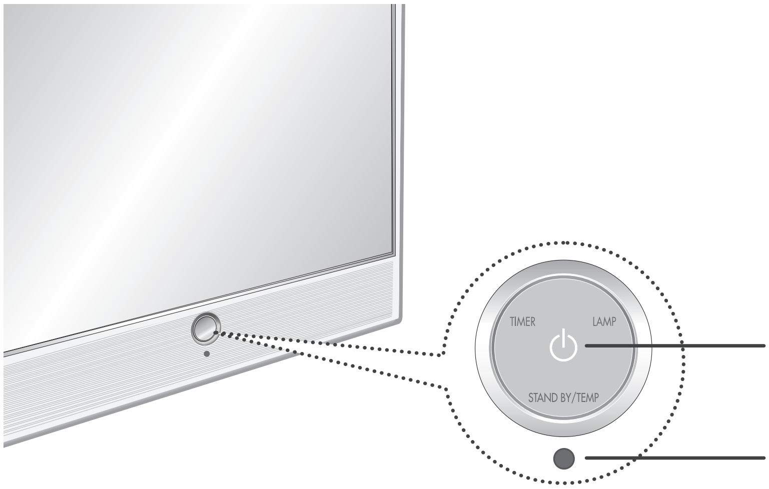
2) Analog Board



OP1 : Stand-by 5V
OP2 : 5VB
OP3 : 12VB

6-2 Troubleshooting Procedures by Error Modes

6-2-1 Installation & Connection



POWER
Press to turn the TV on and off.

Remote Control Sensor
Aim the remote control towards this spot on the TV.

● : Light is On
◑ : Light is Blinking
○ : Light is Off

TIMER	LAMP	STAND BY/TEMP	Indication
○	○	●	Standby state.
○	◑	○	The picture will automatically appear in about 15 seconds.
●	◑	○	Auto Timer ON/OFF has been set and the set will automatically be turned on in about 25 seconds.
◑	○	◑	A cooling fan inside the set is not operating normally.
○	◑	◑	Lamp cover on rear of the set is not properly shut.
○	○	◑	Check if the ventilation hole on the rear of the set is blocked, because if the inner temperature is too high, the power will shut off.
◑	◑	◑	Lamp may be defective.

* It takes about 30 seconds for the TV to warm up, so normal brightness may not appear immediately.
* The TV has a fan to keep the inside lamp from overheating. You'll occasionally hear it working.

6-2-2 Protect Status

1. When the rear cover is opened
A sensor detects when the rear cover is opened and turns the set off and then into Standby mode.
If you close the cover or fix the switch, you can turn the set on by pressing the Power button on the unit or the remote control.
The set will then operate normally.

2. When the temperature sensor operates
When the set is overheated, the internal temperature sensor turns the set off and the set goes to Standby mode.
When the internal temperature of the set returns to a normal range(95℃), turn the power on by pressing the Power button on the unit or the remote control. The set will then operate normally.

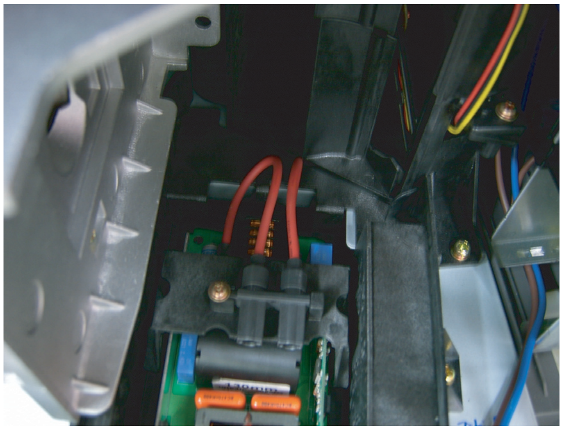
3. Attempting to turn the lamp on fails repeatedly
If turning the lamp on fails, the set automatically tries turning the lamp on 3 times. If all attempts fail, all LED's on the front panel will blink. Check the lamp and the ballast and replace them, if necessary.

6-3 Troubleshooting Procedures by ASS'Y

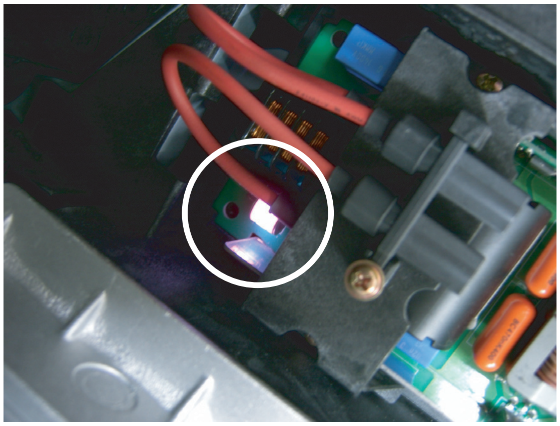
6-3-1 Check Lamp & Ballast

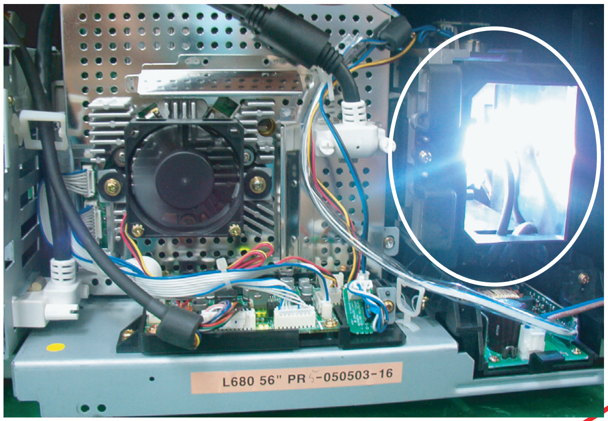
1. When the lamp is not on, check if there is anything wrong with the ballast.

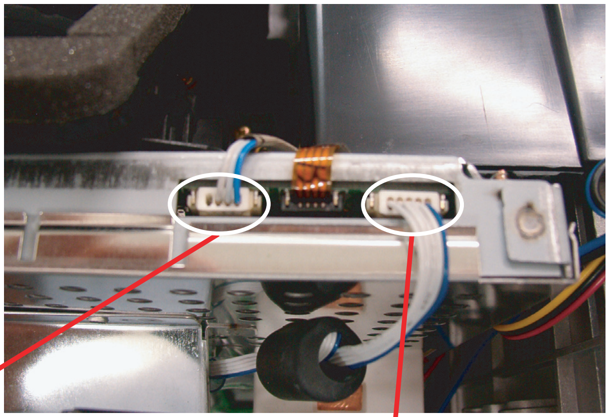
   Remove the lamp. Fix the safety switch on the right with tape and turn on the power.
   Check to see if a blue flame starts igniting in the arc gap inside the ballast momentarily during start-up.
   There is no problem with the ballast if there is a flame. When the ballast has no error, replace the lamp.



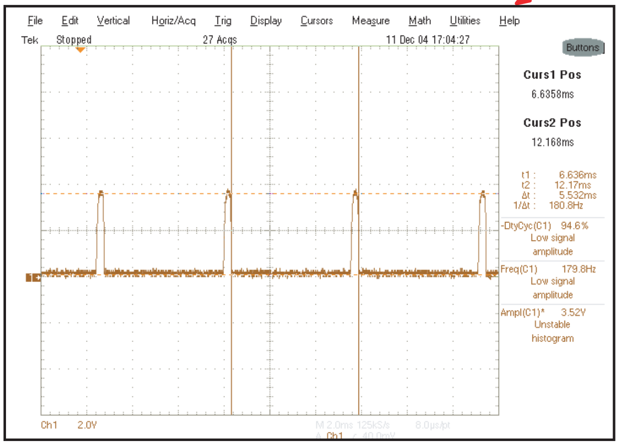
A blue flame occurs momentarily during start-up.




L680 56" PR -050503-16



3.5V 180Hz


File Edit Vertical Horiz/Acq Trig Display Cursors Measure Math Utilities Help
Tek Stopped
Buttons

27 Acqs 11 Dec 04 17:04:27

Curs1 Pos 6.6358ms

Curs2 Pos 12.168ms

t1 : 6.636ms
t2 : 12.17ms
Δt : 5.532ms
1/Δt : 180.8Hz

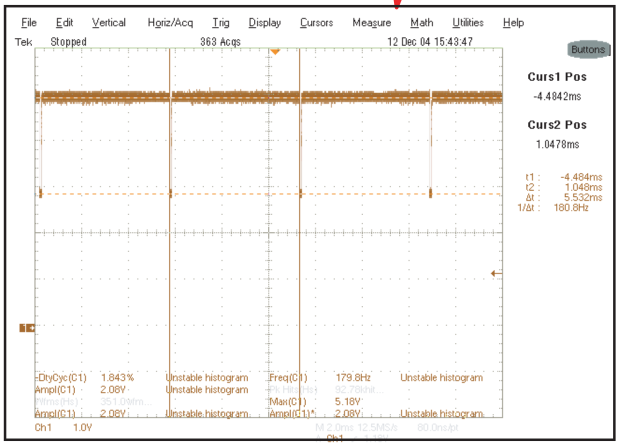
-DtyCyc(C1) 94.6% Low signal amplitude

Freq(C1) 179.8Hz Low signal amplitude

Ampl(C1)* 3.52V Unstable histogram

Ch1 2.0V M 2.0ms 125kS/s 8.0µs/pt
A Ch1 40.0mV

5V 180Hz


File Edit Vertical Horiz/Acq Trig Display Cursors Measure Math Utilities Help
Tek Stopped
Buttons

363 Acqs 12 Dec 04 15:43:47

Curs1 Pos -4.4842ms

Curs2 Pos 1.0478ms

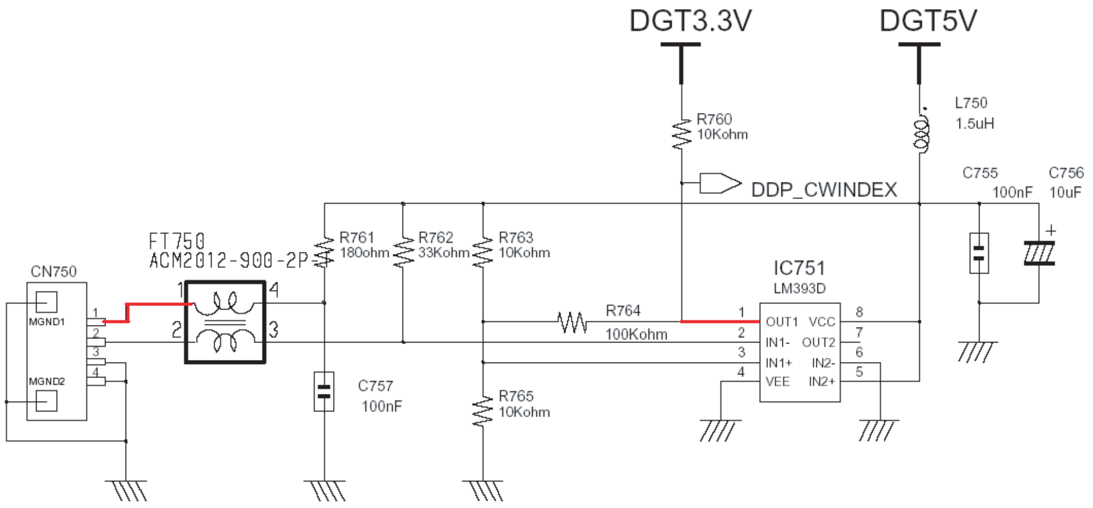
t1 : -4.484ms
t2 : 1.048ms
Δt : 5.532ms
1/Δt : 180.8Hz

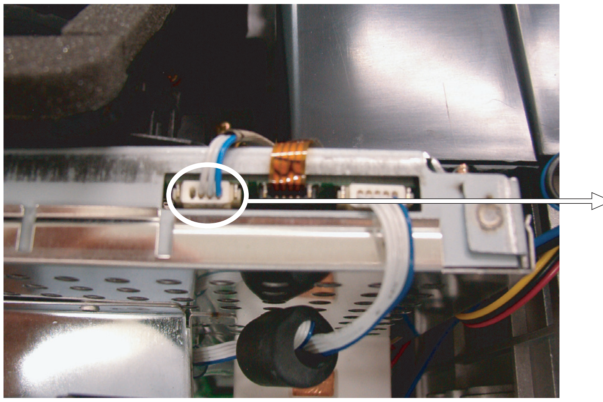
-DtyCyc(C1) 1.843% Unstable histogram
Ampl(C1) 2.08V Unstable histogram
Wfms(Hs) 351.0wfm...
Ampl(C1) 2.08V Unstable histogram
Freq(C1) 179.8Hz Unstable histogram
Pk Hits(Hs) 92.78khit...
Max(C1) 5.18V
Ampl(C1)* 2.08V Unstable histogram

Ch1 1.0V M 2.0ms 12.5MS/s 80.0ns/pt
A Ch1 1.18V

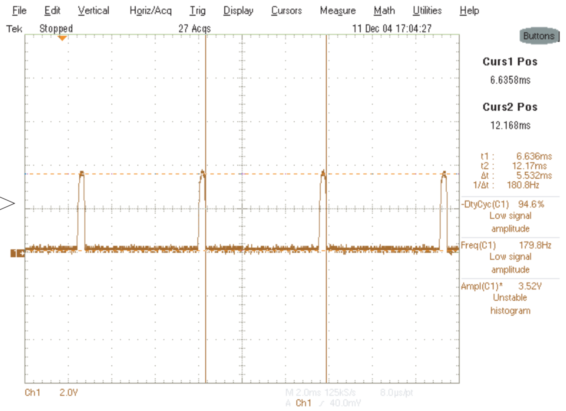
6-3-2 When the lamp and the ballast are normal but the lamp does not turn on or turns off right after quickly lighting up

1. Check the color wheel
   Check if the color wheel is running. + Check the DMD board and the ballast for the signals.
   Check the second CN503 pin for input signals. When 3.5V, 180Hz is output, the color wheel is operating normally.


DGT3.3V
DGT5V
R760
10Kohm
L750
1.5uH
DDP_CWINDEX
C755
100nF
C756
10uF
FT750
ACM2012-900-2P
R761
180ohm
R762
33Kohm
R763
10Kohm
CN750
MGND1
MGND2
1
2
3
4
IC751
LM393D
R764
100Kohm
OUT1
VCC
IN1-
OUT2
IN1+
IN2-
VEE
IN2+
8
7
6
5
C757
100nF
R765
10Kohm



3.5V 180Hz


File
Edit
Vertical
Horiz/Acq
Trig
Display
Cursors
Measure
Math
Utilities
Help
Tek
Stopped
27 Acqs
11 Dec 04 17:04:27
Buttons

Curs1 Pos
6.6358ms

Curs2 Pos
12.168ms

t1 : 6.636ms
t2 : 12.17ms
Δt : 5.532ms
1/Δt : 180.8Hz

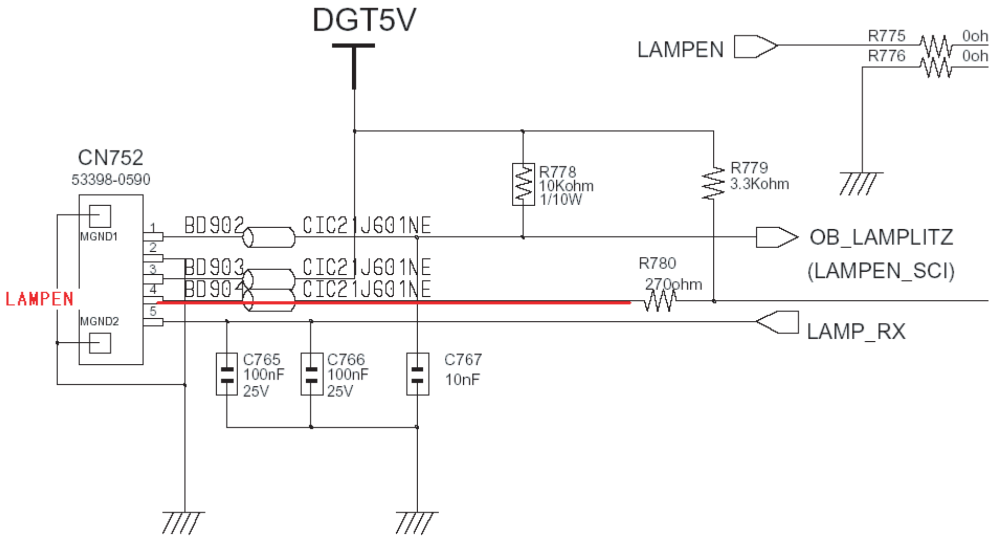
-DtyCyc(C1) 94.6%
Low signal amplitude

Freq(C1) 179.8Hz
Low signal amplitude

Ampl(C1)* 3.52V
Unstable histogram

Ch1 2.0V
M 2.0ms 125kS/s 8.0μs/pt
A Ch1 ⟋ 40.0mV

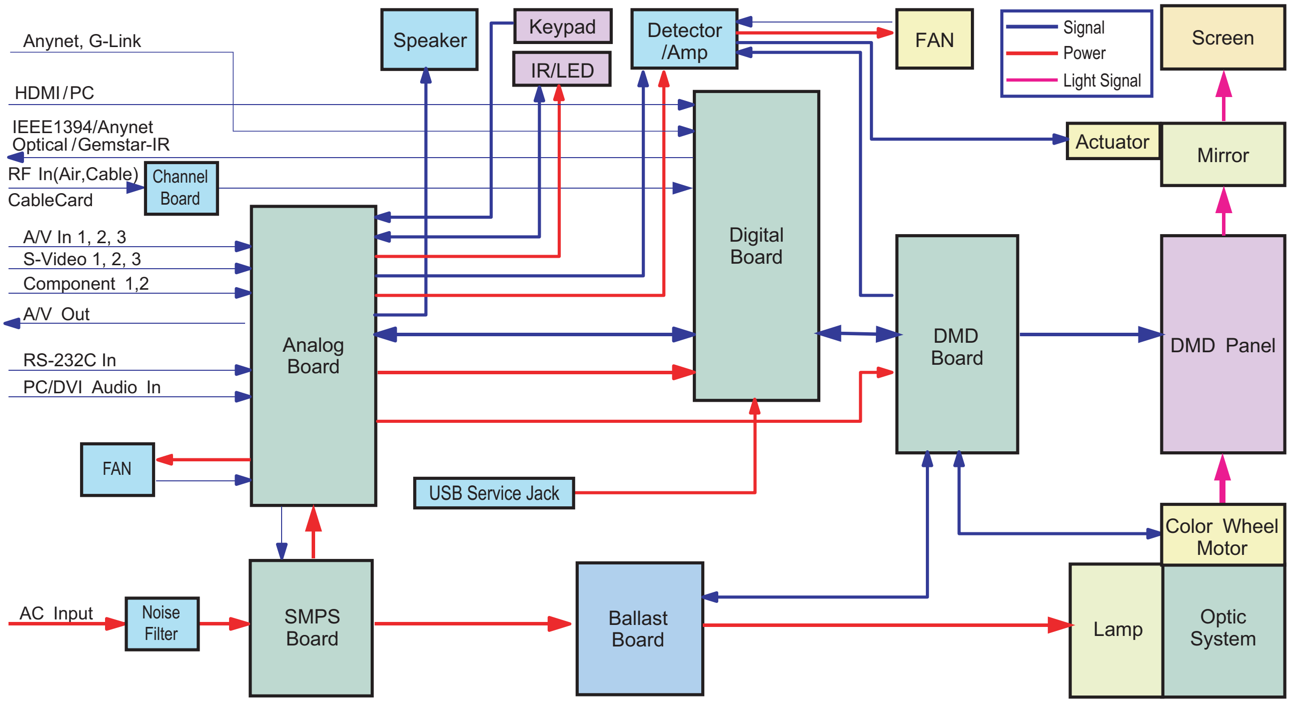
※ DMD Board Check Diagram


DGT5V
LAMPEN
R775
R776
0oh
0oh
CN752
53398-0590
MGND1
MGND2
1
2
3
4
5
LAMPEN
BD902
BD903
BD904
CIC21J601NE
CIC21J601NE
CIC21J601NE
R778
10Kohm
1/10W
R779
3.3Kohm
OB_LAMPLITZ
(LAMPEN_SCI)
R780
270ohm
LAMP_RX
C765
100nF
25V
C766
100nF
25V
C767
10nF

MEMO

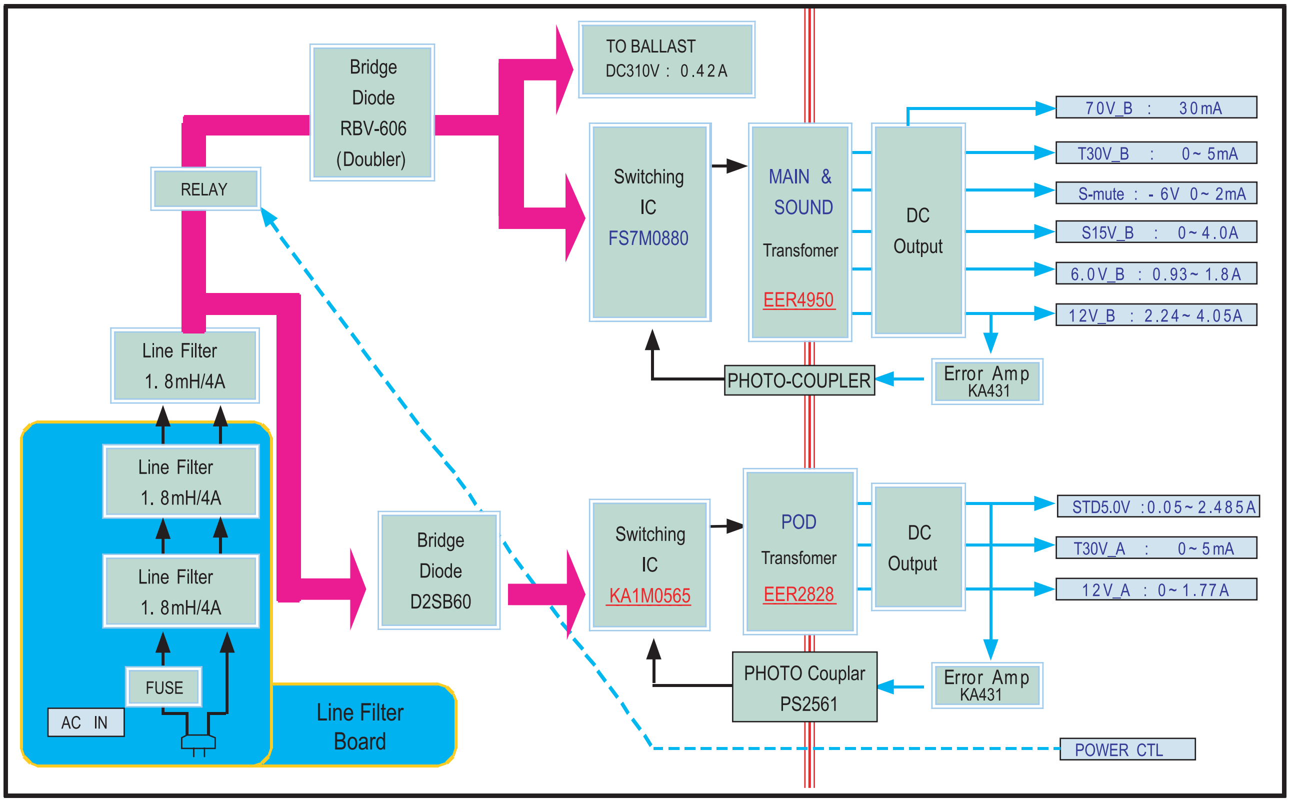
7. Block Diagram

7-1 Overall Block Diagram

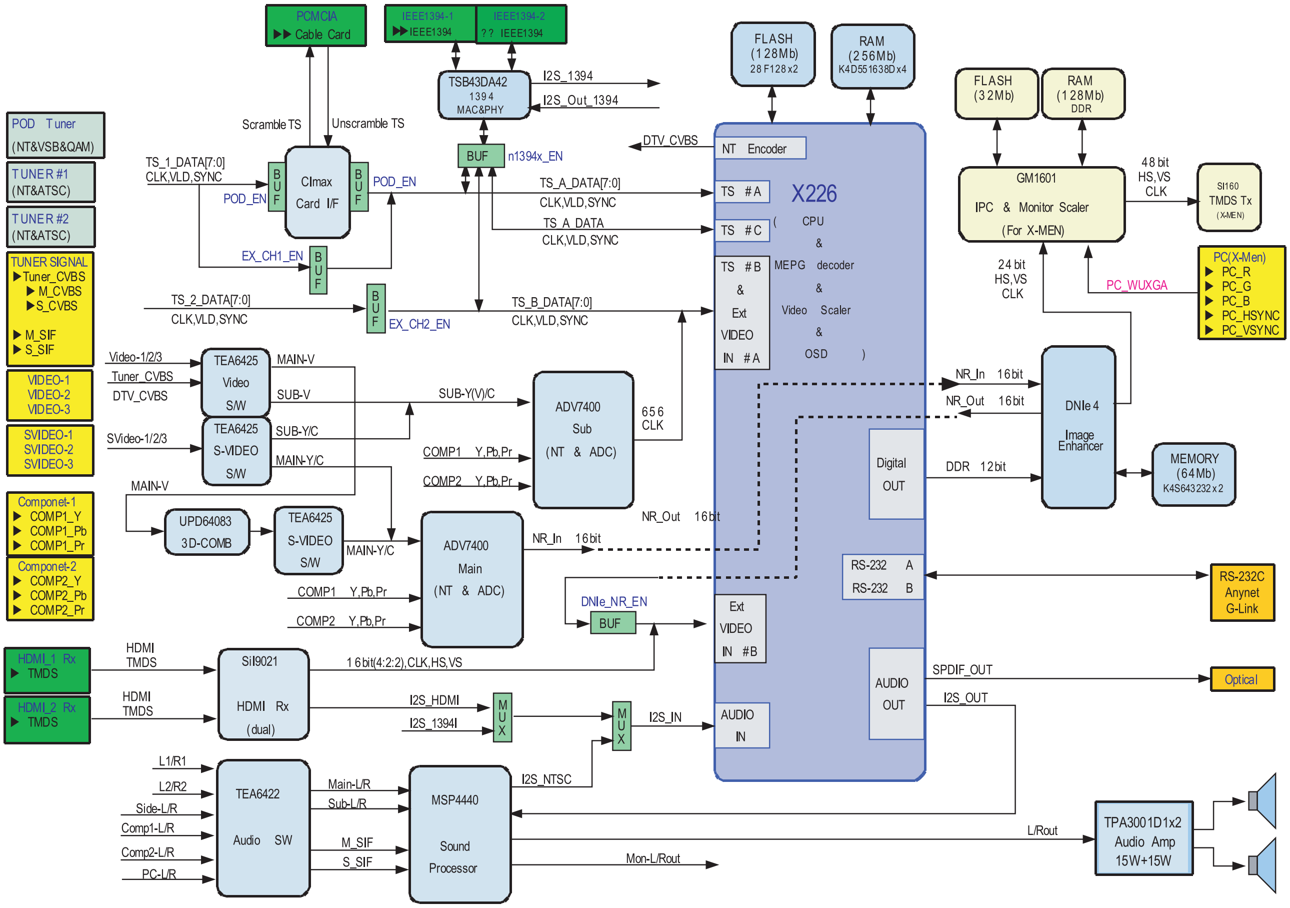

Anynet, G-Link
HDMI/PC
IEEE1394/Anynet
Optical/Gemstar-IR
RF In(Air,Cable)
CableCard
Channel Board
A/V In 1, 2, 3
S-Video 1, 2, 3
Component 1,2
A/V Out
RS-232C In
PC/DVI Audio In
FAN
Analog Board
Speaker
Keypad
IR/LED
Detector /Amp
FAN
Signal
Power
Light Signal
Screen
Actuator
Mirror
Digital Board
DMD Board
DMD Panel
USB Service Jack
Color Wheel Motor
AC Input
Noise Filter
SMPS Board
Ballast Board
Lamp
Optic System

7-2 Partial Block Diagram

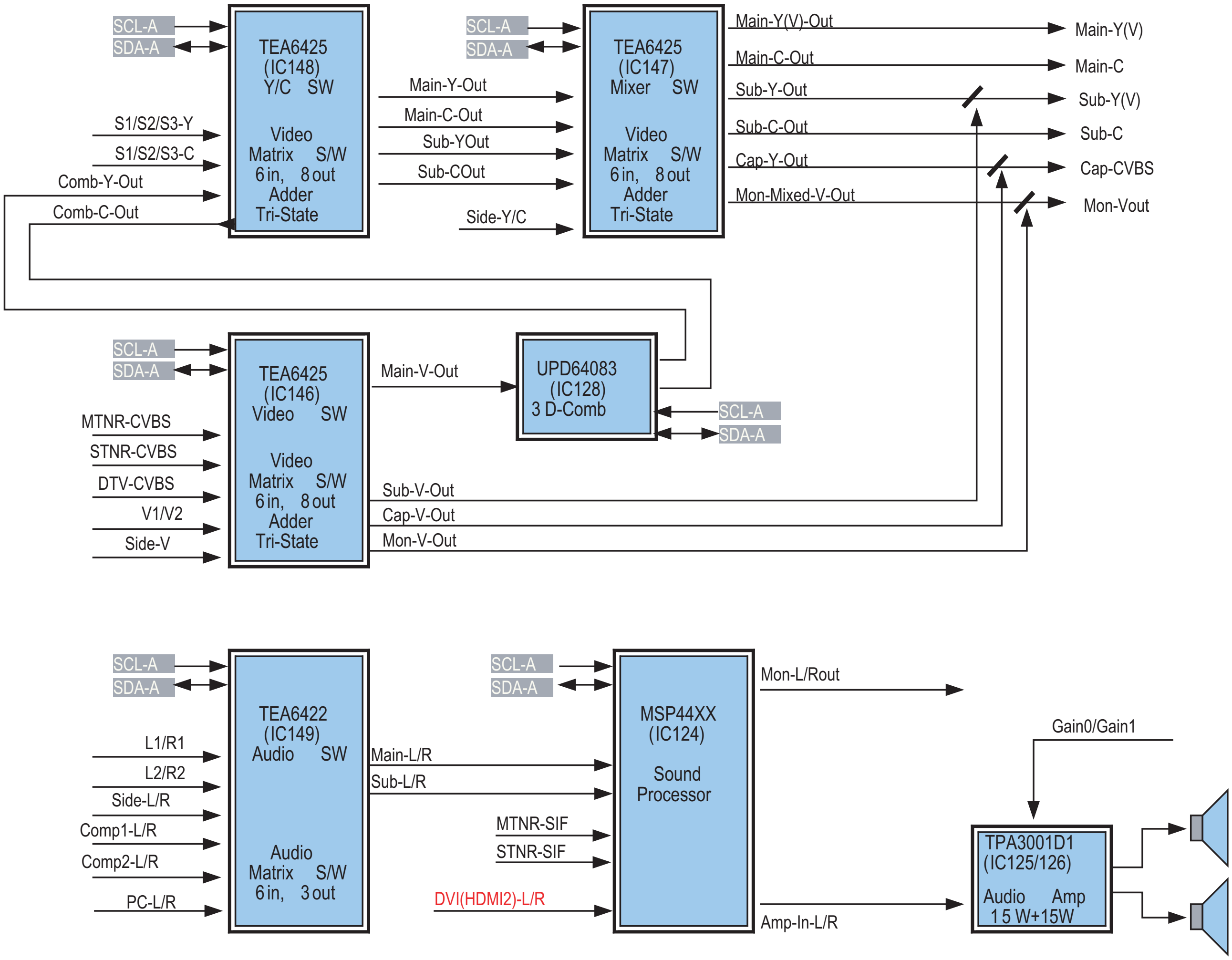
7-2-1 Power Board Block Diagram


TO BALLAST
DC310V : 0.42A
Bridge
Diode
RBV-606
(Doubler)
RELAY
Switching
IC
FS7M0880
MAIN &
SOUND
Transfomer
EER4950
DC
Output
70V_B : 30mA
T30V_B : 0~ 5mA
S-mute : - 6V 0~ 2mA
S15V_B : 0~ 4.0A
6.0V_B : 0.93~ 1.8A
12V_B : 2.24~ 4.05A
PHOTO-COUPLER
Error Amp
KA431
Line Filter
1. 8mH/4A
Line Filter
1. 8mH/4A
Line Filter
1. 8mH/4A
FUSE
AC IN
Line Filter
Board
Bridge
Diode
D2SB60
Switching
IC
KA1M0565
POD
Transfomer
EER2828
DC
Output
STD5.0V :0.05~ 2.485A
T30V_A : 0~ 5mA
12V_A : 0~ 1.77A
PHOTO Couplar
PS2561
Error Amp
KA431
POWER CTL

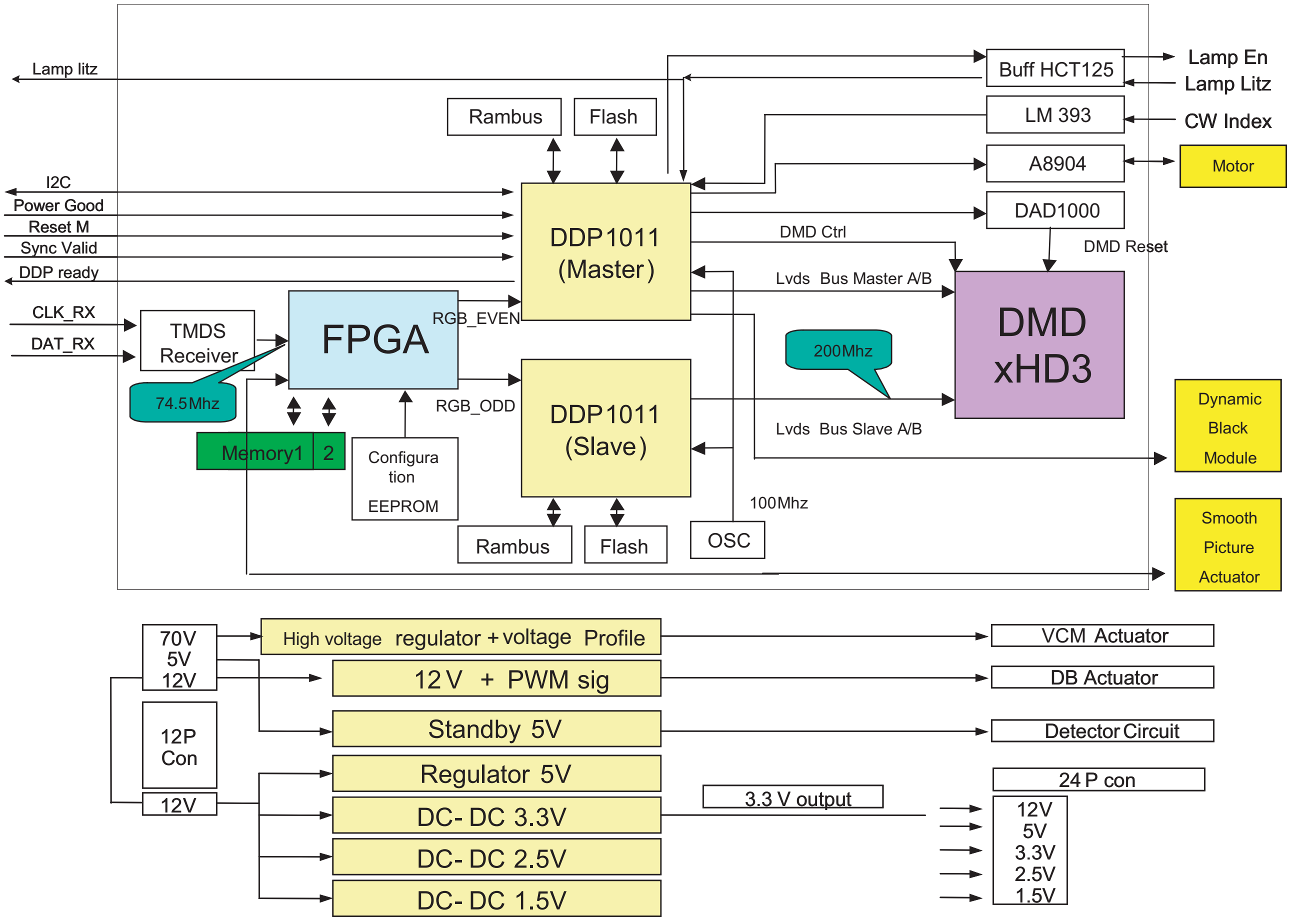
7-2-2 Digital Board Block Diagram


PCMCIA
Cable Card
IEEE1394-1
IEEE1394
IEEE1394-2
?? IEEE1394
TSB43DA42
1394
MAC&PHY
I2S_1394
I2S_Out_1394
BUF
n1394x_EN
FLASH
(128Mb)
28F128x2
RAM
(256Mb)
K4D551638Dx4
FLASH
(32Mb)
RAM
(128Mb)
DDR
POD Tuner
(NT&VSB&QAM)
TUNER #1
(NT&ATSC)
TUNER #2
(NT&ATSC)
TUNER SIGNAL
Tuner_CVBS
M_CVBS
S_CVBS
M_SIF
S_SIF
Scramble TS
Unscramble TS
TS_1_DATA[7:0]
CLK,VLD,SYNC
POD_EN
BUF
CImax
Card I/F
BUF
POD_EN
EX_CH1_EN
BUF
TS_A_DATA[7:0]
CLK,VLD,SYNC
TS_A_DATA
CLK,VLD,SYNC
DTV_CVBS
NT Encoder
TS #A
TS #C
X226
(CPU
&
MEPG decoder
&
Video Scaler
&
OSD)
TS #B
&
Ext
VIDEO
IN #A
TS_2_DATA[7:0]
CLK,VLD,SYNC
BUF
EX_CH2_EN
TS_B_DATA[7:0]
CLK,VLD,SYNC
GM1601
IPC & Monitor Scaler
(For X-MEN)
48bit
HS,VS
CLK
SiI160
TMDS Tx
(X-MEN)
24bit
HS,VS
CLK
PC_WUXGA
PC(X-Men)
PC_R
PC_G
PC_B
PC_HSYNC
PC_VSYNC
VIDEO-1
VIDEO-2
VIDEO-3
Video-1/2/3
Tuner_CVBS
DTV_CVBS
TEA6425
Video
S/W
MAIN-V
SUB-V
SUB-Y(V)/C
ADV7400
Sub
(NT & ADC)
656
CLK
NR_In 16bit
NR_Out 16bit
DNIe4
Image
Enhancer
SVIDEO-1
SVIDEO-2
SVIDEO-3
SVideo-1/2/3
TEA6425
S-VIDEO
S/W
SUB-Y/C
MAIN-Y/C
COMP1 Y,Pb,Pr
COMP2 Y,Pb,Pr
Digital
OUT
DDR 12bit
MEMORY
(64Mb)
K4S643232x2
MAIN-V
Componet-1
COMP1_Y
COMP1_Pb
COMP1_Pr
UPD64083
3D-COMB
TEA6425
S-VIDEO
S/W
MAIN-Y/C
ADV7400
Main
(NT & ADC)
NR_Out 16bit
NR_In 16bit
RS-232 A
RS-232 B
RS-232C
Anynet
G-Link
Componet-2
COMP2_Y
COMP2_Pb
COMP2_Pr
COMP1 Y,Pb,Pr
COMP2 Y,Pb,Pr
DNIe_NR_EN
BUF
Ext
VIDEO
IN #B
HDMI_1 Rx
TMDS
HDMI
TMDS
SiI9021
HDMI Rx
(dual)
16bit(4:2:2),CLK,HS,VS
HDMI_2 Rx
TMDS
HDMI
TMDS
I2S_HDMI
I2S_1394I
MUX
MUX
I2S_IN
AUDIO
IN
AUDIO
OUT
SPDIF_OUT
Optical
I2S_OUT
L1/R1
L2/R2
Side-L/R
Comp1-L/R
Comp2-L/R
PC-L/R
TEA6422
Audio SW
Main-L/R
Sub-L/R
M_SIF
S_SIF
MSP4440
Sound
Processor
I2S_NTSC
L/Rout
Mon-L/Rout
TPA3001D1x2
Audio Amp
15W+15W

7-2-3 Analog Board Block Diagram


SCL-A
SDA-A
TEA6425
(IC148)
Y/C SW
Video
Matrix S/W
6 in, 8 out
Adder
Tri-State
S1/S2/S3-Y
S1/S2/S3-C
Comb-Y-Out
Comb-C-Out
Main-Y-Out
Main-C-Out
Sub-YOut
Sub-COut
Side-Y/C
TEA6425
(IC147)
Mixer SW
Video
Matrix S/W
6 in, 8 out
Adder
Tri-State
Main-Y(V)-Out
Main-C-Out
Sub-Y-Out
Sub-C-Out
Cap-Y-Out
Mon-Mixed-V-Out
Main-Y(V)
Main-C
Sub-Y(V)
Sub-C
Cap-CVBS
Mon-Vout
TEA6425
(IC146)
Video SW
Video
Matrix S/W
6 in, 8 out
Adder
Tri-State
MTNR-CVBS
STNR-CVBS
DTV-CVBS
V1/V2
Side-V
Main-V-Out
UPD64083
(IC128)
3 D-Comb
Sub-V-Out
Cap-V-Out
Mon-V-Out
TEA6422
(IC149)
Audio SW
Audio
Matrix S/W
6 in, 3 out
L1/R1
L2/R2
Side-L/R
Comp1-L/R
Comp2-L/R
PC-L/R
Main-L/R
Sub-L/R
MTNR-SIF
STNR-SIF
DVI(HDMI2)-L/R
MSP44XX
(IC124)
Sound
Processor
Mon-L/Rout
Amp-In-L/R
Gain0/Gain1
TPA3001D1
(IC125/126)
Audio Amp
15 W+15W

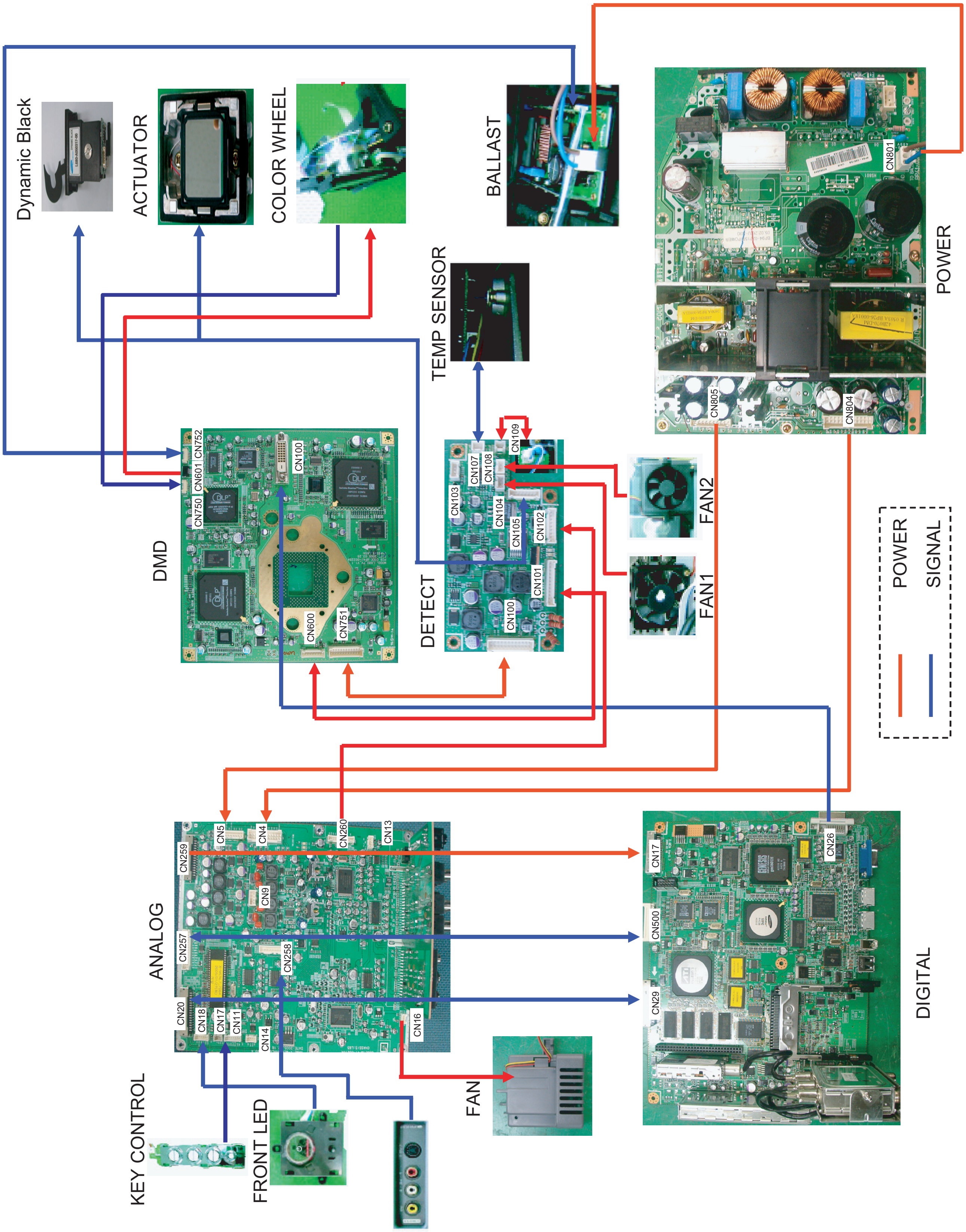
7-2-4 DMD Board Block Diagram


Lamp litz
Buff HCT125
Lamp En
Lamp Litz
LM 393
CW Index
Rambus
Flash
A8904
Motor
I2C
Power Good
Reset M
Sync Valid
DDP ready
DDP1011
(Master)
DAD1000
DMD Ctrl
DMD Reset
Lvds Bus Master A/B
CLK_RX
DAT_RX
TMDS
Receiver
FPGA
RGB_EVEN
74.5Mhz
200Mhz
DMD
xHD3
RGB_ODD
DDP1011
(Slave)
Memory1
2
Configura
tion
EEPROM
Lvds Bus Slave A/B
Dynamic
Black
Module
100Mhz
Rambus
Flash
OSC
Smooth
Picture
Actuator
70V
5V
12V
High voltage regulator + voltage Profile
VCM Actuator
12 V + PWM sig
DB Actuator
12P
Con
Standby 5V
Detector Circuit
Regulator 5V
24 P con
12V
3.3 V output
DC- DC 3.3V
DC- DC 2.5V
DC- DC 1.5V
12V
5V
3.3V
2.5V
1.5V

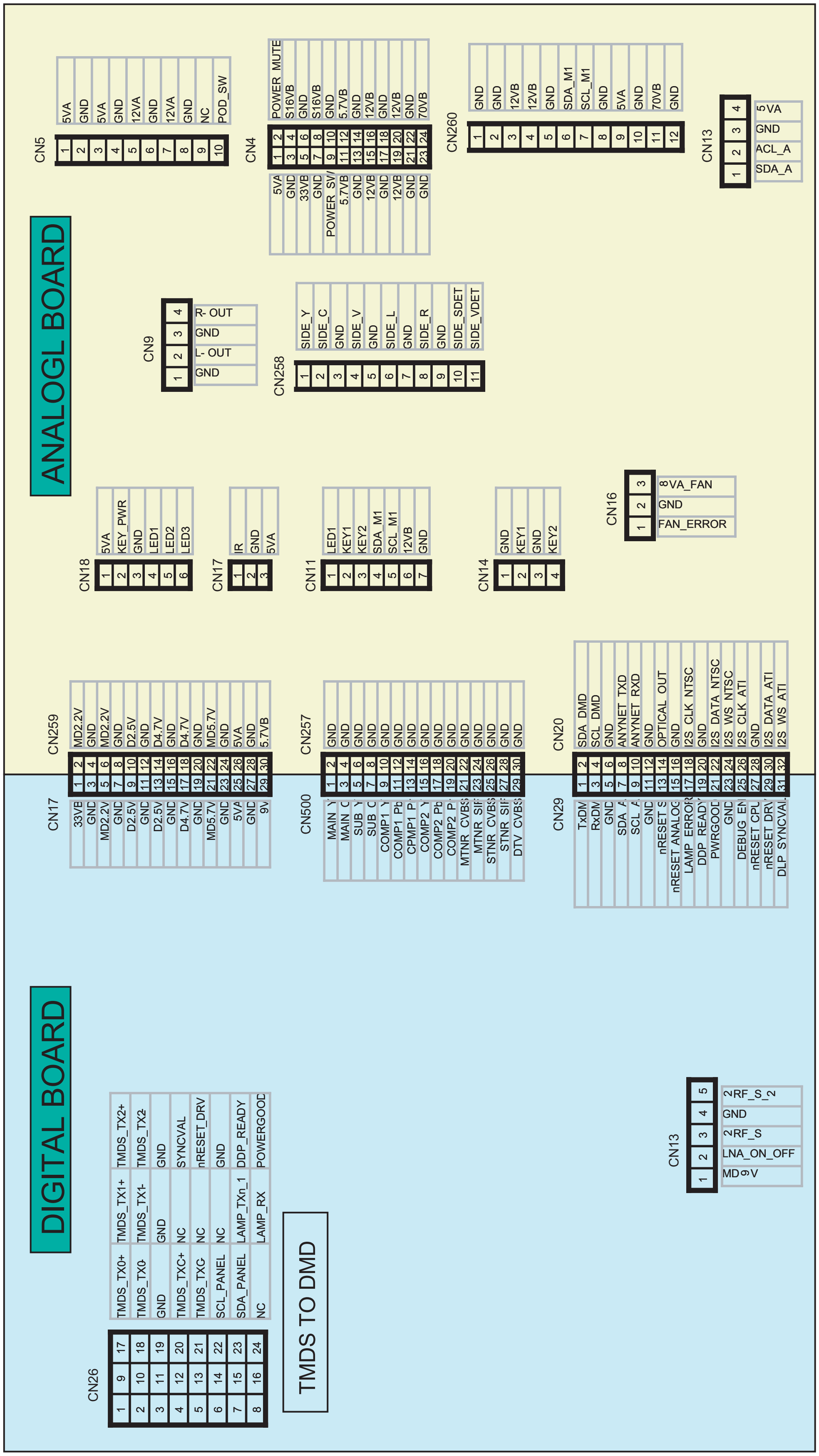
MEMO

8. Wiring Diagram

8-1 Overall Wiring


Dynamic Black
ACTUATOR
COLOR WHEEL
BALLAST
CN801
POWER
TEMP SENSOR
CN805
CN804
CN752
CN601
CN750
CN100
CN600
CN751
DMD
CN107
CN108
CN109
CN103
CN104
CN105
CN102
CN101
CN100
DETECT
FAN2
FAN1
POWER
SIGNAL
CN5
CN4
CN260
CN13
CN259
CN9
CN257
CN258
CN20
CN18
CN17
CN11
CN14
CN16
ANALOG
CN17
CN26
CN500
CN29
DIGITAL
KEY CONTROL
FRONT LED
FAN

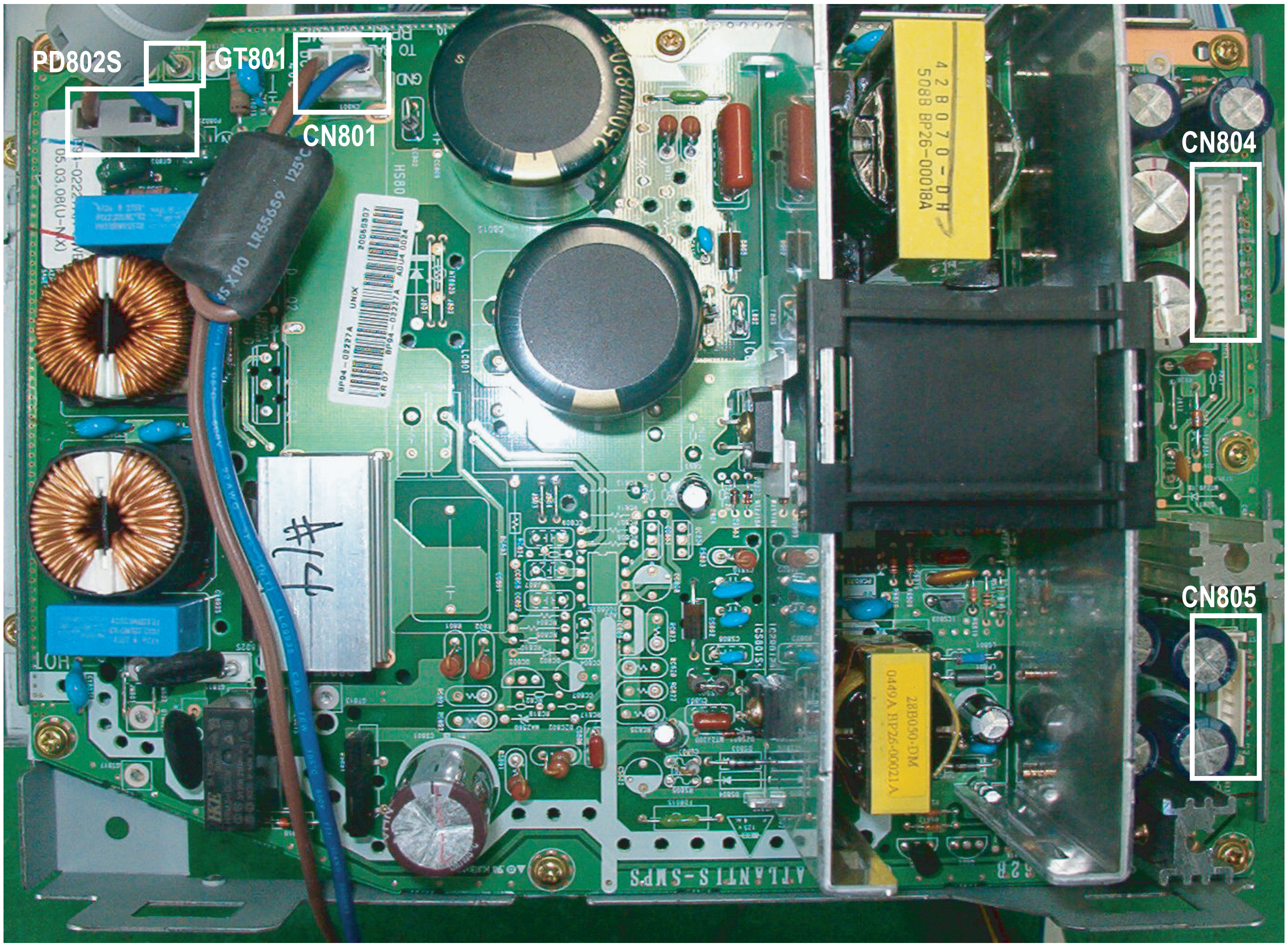
8-2 Connection between Analog and Digital Board


ANALOGL BOARD
DIGITAL BOARD
CN5
5VA
GND
5VA
GND
12VA
GND
12VA
GND
NC
POD_SW
CN4
POWER_MUTE
S16VB
GND
S16VB
GND
5.7VB
GND
12VB
GND
12VB
GND
70VB
5VA
GND
33VB
GND
POWER_SV
5.7VB
GND
12VB
GND
12VB
GND
GND
CN260
GND
GND
12VB
12VB
GND
SDA_M1
SCL_M1
GND
5VA
GND
70VB
GND
CN13
5VA
GND
ACL_A
SDA_A
CN9
R- OUT
GND
L- OUT
GND
CN258
SIDE_Y
SIDE_C
GND
SIDE_V
GND
SIDE_L
GND
SIDE_R
GND
SIDE_SDET
SIDE_VDET
CN16
8VA_FAN
GND
FAN_ERROR
CN18
5VA
KEY_PWR
GND
LED1
LED2
LED3
CN17
IR
GND
5VA
CN11
LED1
KEY1
KEY2
SDA_M1
SCL_M1
12VB
GND
CN14
GND
KEY1
GND
KEY2
CN259
MD2.2V
GND
MD2.2V
GND
D2.5V
GND
D4.7V
GND
D4.7V
GND
MD5.7V
GND
5VA
GND
5.7VB
CN17
33VB
GND
MD2.2V
GND
D2.5V
GND
D2.5V
GND
D4.7V
GND
MD5.7V
GND
5VA
GND
9V
CN257
GND
GND
GND
GND
GND
GND
GND
GND
GND
GND
GND
GND
GND
GND
GND
CN500
MAIN_Y
MAIN_C
SUB_Y
SUB_C
COMP1_Y
COMP1_Pb
CPMP1_Pr
COMP2_Y
COMP2_Pb
COMP2_Pr
MTNR_CVBS
MTNR_SIF
STNR_CVBS
STNR_SIF
DTV_CVBS
CN20
SDA_DMD
SCL_DMD
GND
ANYNET_TXD
ANYNET_RXD
GND
OPTICAL_OUT
GND
I2S_CLK_NTSC
GND
I2S_DATA_NTSC
I2S_WS_NTSC
I2S_CLK_ATI
GND
I2S_DATA_ATI
I2S_WS_ATI
CN29
TxDM
RxDM
GND
SDA_A
SCL_A
GND
nRESET_S
nRESET_ANALOG
LAMP_ERROR
DDP_READY
PWRGOOD
GND
DEBUG_EN
nRESET_CPU
nRESET_DRV
DLP_SYNCVAL
CN13
2RF_S_2
GND
2RF_S
LNA_ON_OFF
MD9V
CN26
TMDS_TX0+
TMDS_TX0-
GND
TMDS_TXC+
TMDS_TXC-
SCL_PANEL
SDA_PANEL
NC
TMDS_TX1+
TMDS_TX1-
GND
NC
NC
NC
LAMP_TXn_1
LAMP_RX
TMDS_TX2+
TMDS_TX2-
GND
SYNCVAL
nRESET_DRV
GND
DDP_READY
POWERGOOD
TMDS TO DMD

9. PCB Diagram

9-1 Power Board

9-1-1 Assy Power Board



■ DC Power Supply
(Supplies DC power to the analog PCB. The analog board is responsible for the power supply to the digital/DMD board.)

9-1-2 Names & Roles of Key Parts

⋆ CN801 : Supplies power (DC220-400v) to the ballast
⋆ GT801 : Anti-lightning wire connected to the digital board. The anti-lightning wire should be installed for safety purposes.
⋆ PD802S : Inlet type of terminal that is connected to the AC power cable.

9-1-3 Power Board Connector Pin

CN805
Connecting Power to Analog Board

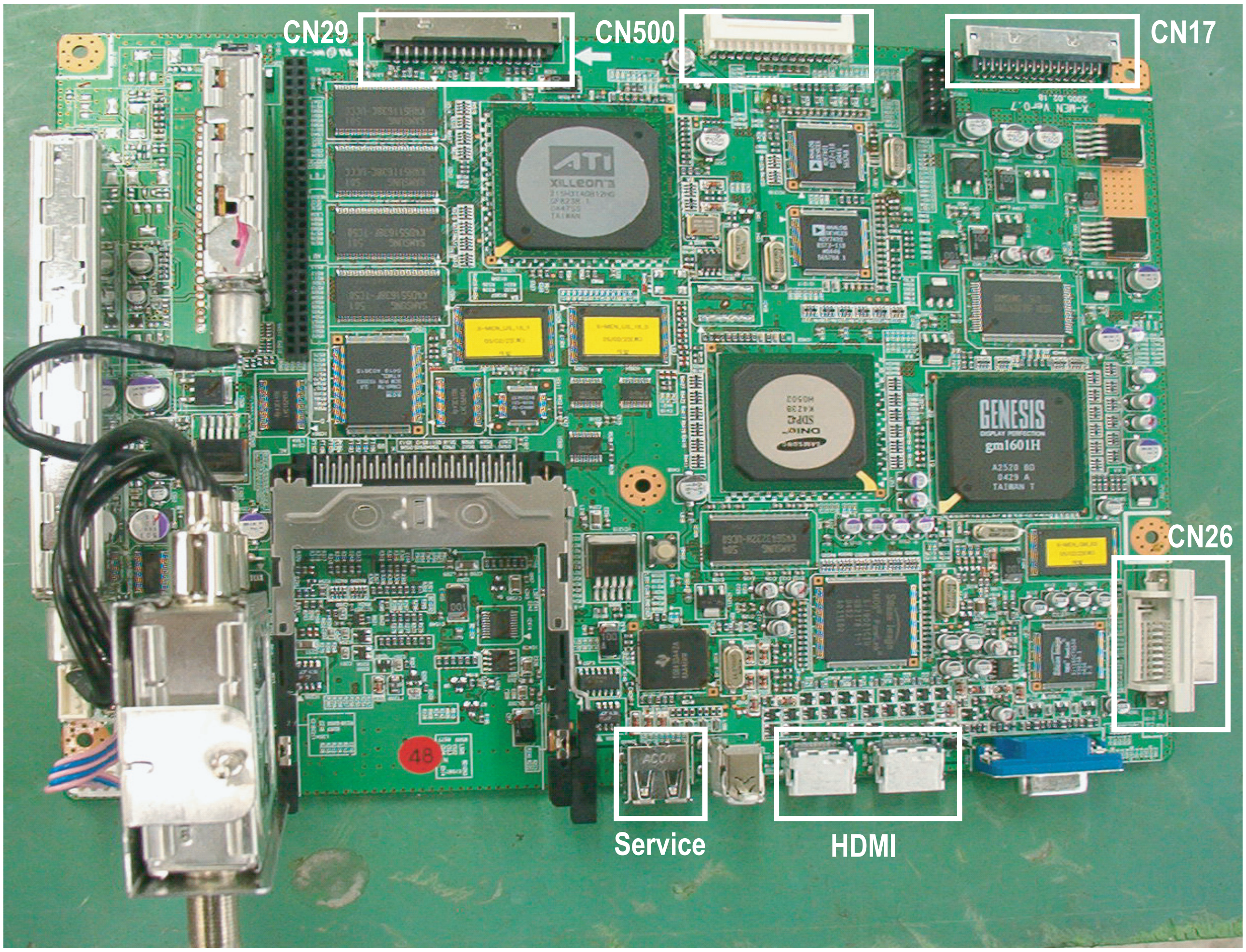
Pin No.	Pin Name
1	STD 5V
2	GND
3	STD 5V
4	GND
5	12VA
6	GND
7	12VA
8	GND
9	33VA
10	POD-SW

CN804
Connecting Power to Analog Board

Pin Name	PIN No.		Pin Name
STD 5V	1	2	S-MUTE
GND	3	4	S14.5V
33V	5	6	GND
GND	7	8	S14.5V
POWER-SW	9	10	GND
5.5VB	11	12	5.5VB
GND	13	14	GND
12VB	15	16	12VB
GND	17	18	GND
12VB	19	20	12VB
GND	21	22	GND
GND	23	24	80VB

9-2 Digital Board

9-2-1 Assy Digital Board



- All Digital Video Processing
- OSD / Menu
- Reset Switch (Reset to the CPU)
- Connected with POD channel Board.

9-2-2 Names & Roles of Key Parts

⋆ CableCard :
CableCARD is a nationwide standard system that allows your local cable TV provider to supply you with an access card customized to your account. This card allows the TV to receive, decode and unscramble the premium digital channels included in your cable TV subscription without the use of a cable box.

⋆ High Definition Multimedia Interface :
The HDMI^{TM} (High Definition Multimedia Interface) supports uncompressed standard and high definition digital video formats and existing digital multi-channel audio formats.

⋆ G-Link :
This jack is used by the TV Guide On screen system of the TV to control external analog devices such as VCRs, cable boxes, satellite receivers.

⋆ D-Net(IEEE1394) :
These jacks allow the TV to connect to external IEEE 1394 digital products by means of a single cable.

9-2-3 Digital Board Connector Pin

CN17

Pin Name (Built-In)	PIN No.		Pin Name (Built-In)
MD2.3V	1	2	B33V
GND	3	4	GND
MD2.3V	5	6	MD2.3V
GND	7	8	GND
D2.5V	9	10	D2.5V
GND	11	12	GND
D4.7V	13	14	D2.5V
GND	15	16	GND
D4.7V	17	18	D4.7V
GND	19	20	GND
MD5.7V	21	22	MD5.7V
GND	23	24	GND
5VA	25	26	5VA
GND	27	28	GND
D5.7V	29	30	MD9V

CN500

Pin Name (Built-In)	PIN No.		Pin Name (Built-In)
MAIN_Y	1	2	GND
MAIN_C	3	4	GND
SUB_Y_V	5	6	GND
SUB_C	7	8	GND
COMP1_Y	9	10	GND
COMP1_Pb	11	12	GND
COMP1_Pr	13	14	GND
COMP2_Y	15	16	GND
COMP2_Pb	17	18	GND
COMP2_Pr	19	20	GND
MTNR_CVBS	21	22	GND
MTNR_SIF	23	24	GND
STNR_CVBS	25	26	GND
STNR_SIF	27	28	GND
DTV_CVBS	29	30	GND

CN29

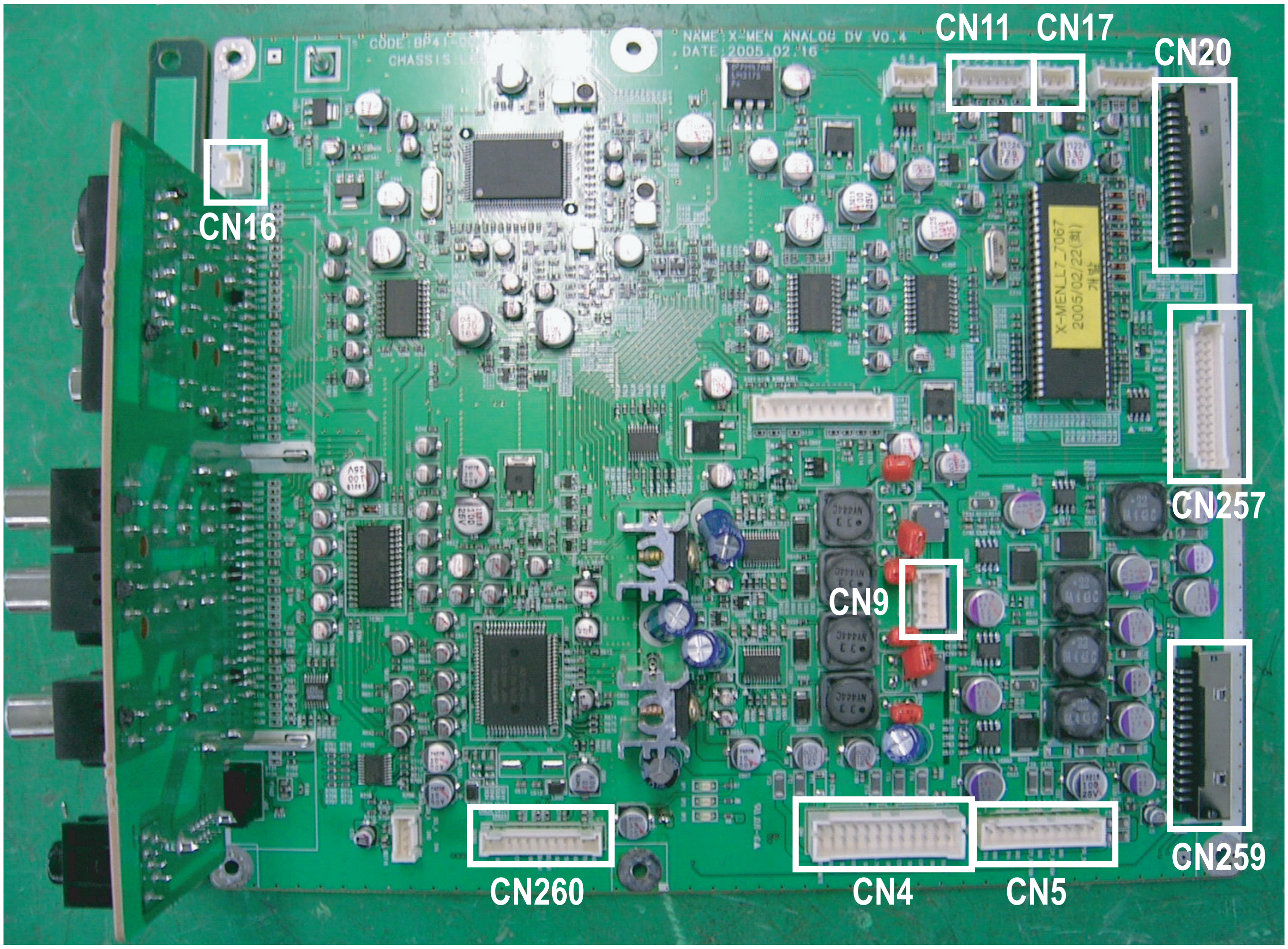
Pin Name (Built-In)	PIN No.		Pin Name (Built-In)
RS232_TxD	1	2	MICOM_TxD
RS232_RxD	3	4	MICOM_RxD
GND	5	6	GND
ANYNET_TxD	7	8	SDA_A
ANYNET_RxD	9	10	SCL_A
GND	11	12	GND
SPDIF_ATI	13	14	nRESET_S
GND	15	16	nRESET_ANALOG
I2S_CLK_NTSC	17	18	LAMP_ERROR
GND	19	20	DDP_READY
I2S_DATA_NTSC	21	22	PWRGOOD
I2S_WS_NTSC	23	24	GND
I2S_CLK_ATI	25	26	nDEBUG_EN
GND	27	28	nRESET_CPU
I2S_DATA_ATI	29	30	nRESET_DRV
I2S_WS_ATI	31	32	DLP_SYNCVAL

CN26

PIN No.	Pin Name	PIN No.	Pin Name	PIN No.	Pin Name
1	TMDS_TX0+	9	TMDS_TX1+	17	TMDS_TX2+
2	TMDS_TX0-	10	TMDS_TX1-	18	TMDS_TX2-
3	GND	11	GND	19	GND
4	TMDS_TXC+	12	NC	20	SYNCVAL
5	TMDS_TXC-	13	NC	21	nRESET_DRV
6	SCL_PANEL	14	NC	22	GND
7	SDA_PANEL	15	LAMP_TXn_1	23	DDP_READY
8	NC	16	LAMP_RX	24	POWERGOOD

9-3 Analog Board

9-3-1 Assy Analog Board



- Distributes supply voltage from the Power Board to Digital Board and DMD Board.
- Transfers Turn-on Command to Digital and Power Board.
- Encompasses the majority of the Audio Circuit
- Analog Video Switching / Processing
- Analog Audio Switching / Processing
- 3D Comb Processing

9-3-2 Names & Roles of Key Parts

⋆ CN260 : Connected to the detect board
⋆ CN4, CN5 : Connected to the power board - receives the second power source generated on the power board.
⋆ CN259 : Sends the power source from the analog to the digital board.
⋆ CN20 : This is a control signal terminal that connects between the analog and digital boards.
⋆ CN257 : This is an AV signal terminal that connects between the analog and digital boards.

9-3-3 Analog Board Connector Pin

CN259

Pin Name (Built-In)	PIN No.		Pin Name (Built-In)
MD2.3V	1	2	B33V
GND	3	4	GND
MD2.3V	5	6	MD2.3V
GND	7	8	GND
D2.5V	9	10	D2.5V
GND	11	12	GND
D4.7V	13	14	D2.5V
GND	15	16	GND
D4.7V	17	18	D4.7V
GND	19	20	GND
MD5.7V	21	22	MD5.7V
GND	23	24	GND
5VA	25	26	5VA
GND	27	28	GND
D5.7V	29	30	MD9V

CN257

Pin Name (Built-In)	PIN No.		Pin Name (Built-In)
MAIN_Y	1	2	GND
MAIN_C	3	4	GND
SUB_Y_V	5	6	GND
SUB_C	7	8	GND
COMP1_Y	9	10	GND
COMP1_Pb	11	12	GND
COMP1_Pr	13	14	GND
COMP2_Y	15	16	GND
COMP2_Pb	17	18	GND
COMP2_Pr	19	20	GND
MTNR_CVBS	21	22	GND
MTNR_SIF	23	24	GND
STNR_CVBS	25	26	GND
STNR_SIF	27	28	GND
DTV_CVBS	29	30	GND

CN20

Pin Name (Built-In)	PIN No.		Pin Name (Built-In)
RS232_TxD	1	2	MICOM_TxD
RS232_RxD	3	4	MICOM_RxD
GND	5	6	GND
ANYNET_TxD	7	8	SDA_A
ANYNET_RxD	9	10	SCL_A
GND	11	12	GND
SPDIF_ATI	13	14	nRESET_S
GND	15	16	nRESET_ANALOG
I2S_CLK_NTSC	17	18	LAMP_ERROR
GND	19	20	DDP_READY
I2S_DATA_NTSC	21	22	PWRGOOD
I2S_WS_NTSC	23	24	GND
I2S_CLK_ATI	25	26	nDEBUG_EN
GND	27	28	nRESET_CPU
I2S_DATA_ATI	29	30	nRESET_DRV
I2S_WS_ATI	31	32	DLP_SYNCVAL

CN4

Pin Name	PIN No.		Pin Name
5VA	1	2	POWER_MUTE
GND	3	4	S16VB
33VB	5	6	GND
GND	7	8	S16VB
POWER_SW	9	10	GND
5.7VB	11	12	5.7VB
GND	13	14	GND
12VB	15	16	12VB
GND	17	18	GND
12VB	19	20	12VB
GND	21	22	GND
GND	23	24	70VB

CN5

Pin No.	Pin Name
1	5VA
2	GND
3	5VA
4	GND
5	12VA
6	GND
7	12VA
8	GND
9	NC
10	POD_SW

CN9

Connecting and transmitting Audio signal to Speaker

Pin No.	Pin Name
1	GND
2	L-OUT
3	GND
4	L-OUT

CN11

Connecting front LED indicators

Pin No.	Pin Name
1	LED1
2	KEY1
3	KEY2
4	SDA_M1
5	SCL_M1
6	12VB
7	GND

CN16

Connecting the Power and Control Signal to the POD Fan

Pin No.	Pin Name
1	FAN_ERROR
2	GND
3	8VA_FAN

CN17

Connecting the IR signal

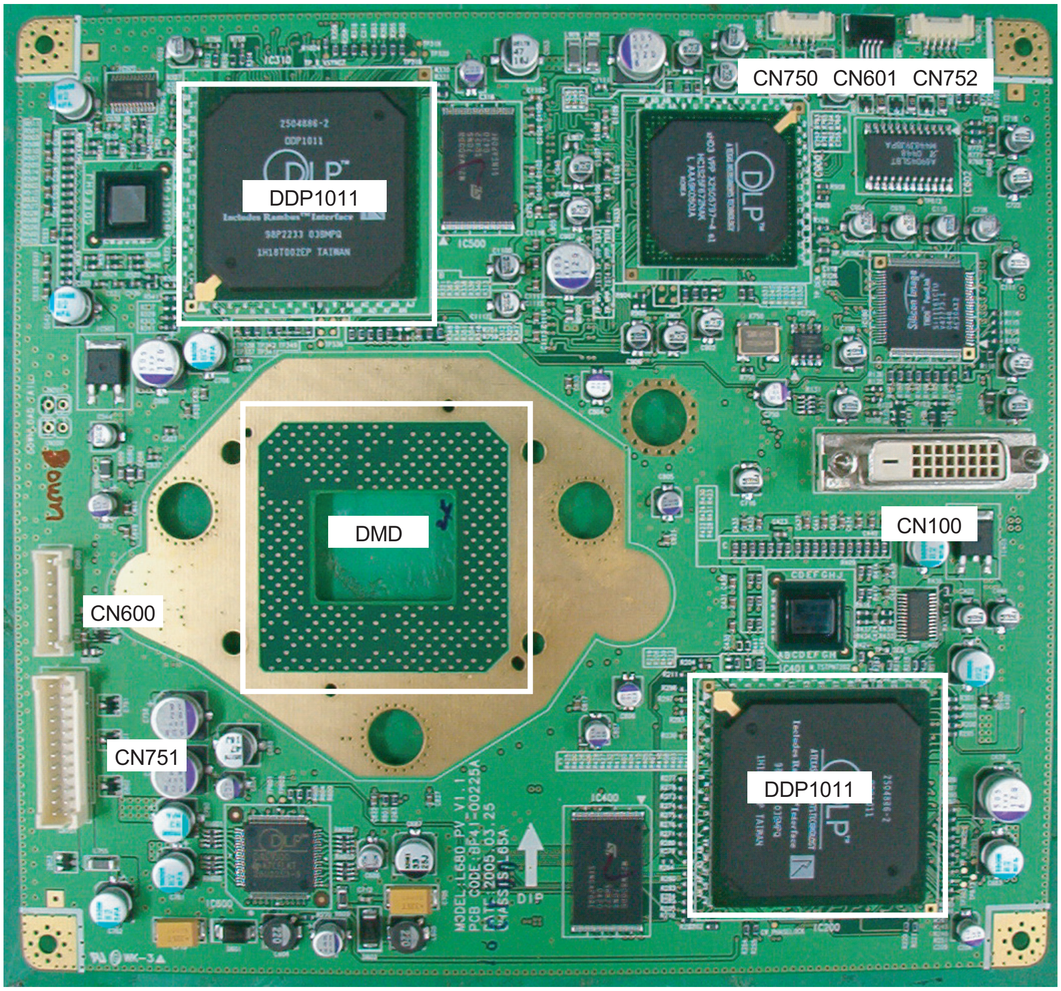
Pin No.	Pin Name
1	IR
2	GND
3	5VA

CN260

Pin No.	Pin Name
1	GND
2	GND
3	12VB
4	12VB
5	GND
6	SDA_M1
7	SCL_M1
8	GND
9	5VA
10	GND
11	70VB
12	GND

9-4 DMD Board

9-4-1 Assy DMD Board



- ■ Controls the lamp (ON/OFF)
- ■ Drives the color wheel motor
- ■ Drives the panel
- ■ Controls the sensors

9-5-2 Names & Roles of Key Parts

* CN751 : This receives the power source from the detect board and communicates with the I2C.
* CN601 : This sends a 60Hz signal to the detect board.
* CN600 : This supplies the power to drive the color wheel.
* CN750 : This receives the color wheel rotating signals.
* CN752 : This sends signals to the ballast.
* CN100 : The DVI cable terminal. This receives the image data from the digital board.
* DMD PANEL : This is protected with a heat sink and fixtures.
* DDP1011 : This processes the DMD drive and the signals.

MEMO

10. Schematic Diagram

10-1 Analog Board

10-1-1 PowerSignal

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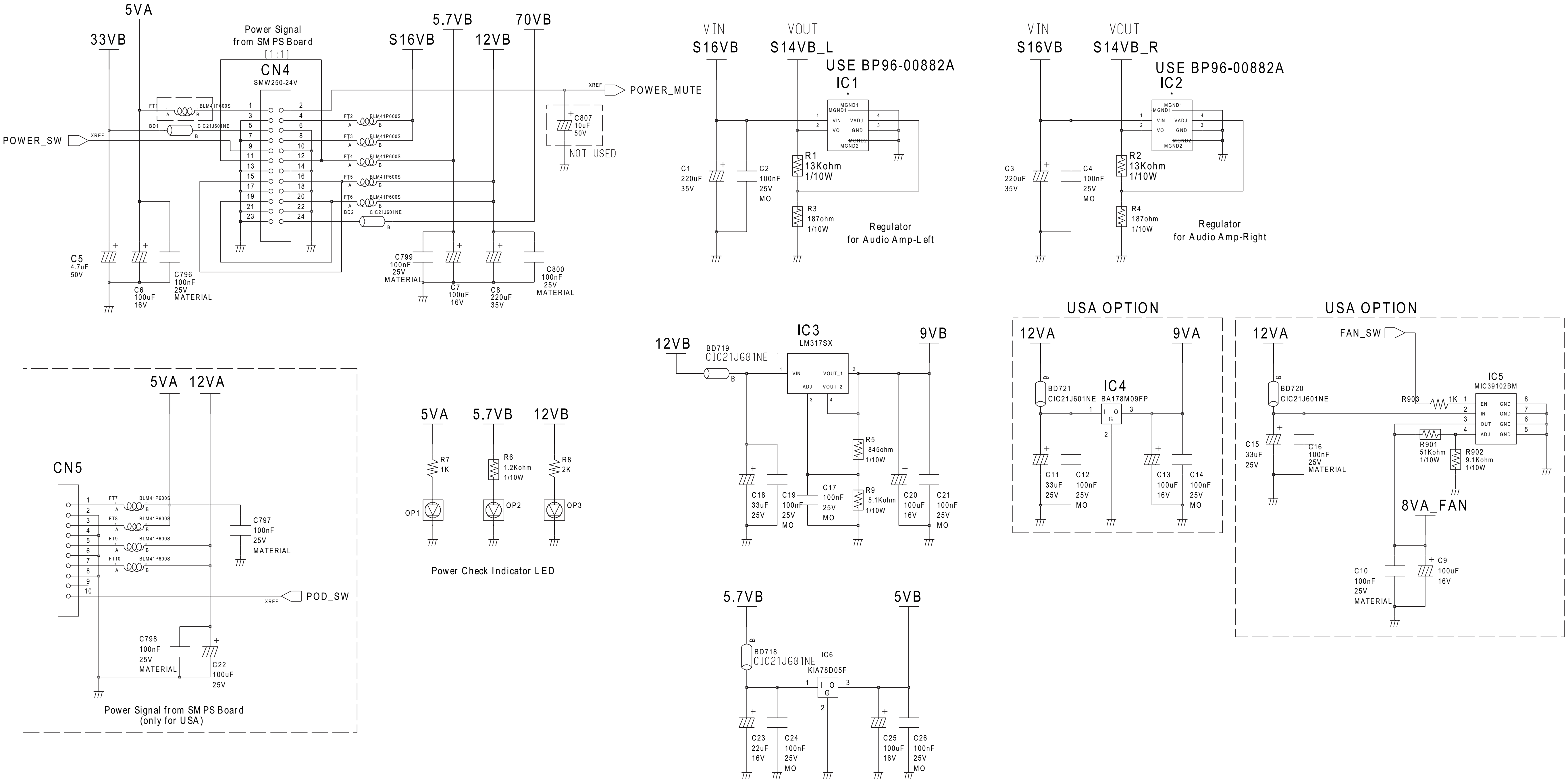
5VA
33VB
Power Signal
from SMPS Board
[1:1]
CN4
SMW250-24V
5.7VB
70VB
S16VB
12VB
POWER_MUTE
XREF
POWER_SW
XREF
FT1
BLM41P600S
BD1
CIC21J601NE
FT2
FT3
FT4
FT5
FT6
BD2
C807
10uF
50V
NOT USED
C5
4.7uF
50V
C6
100uF
16V
C796
100nF
25V
MATERIAL
C799
100nF
25V
MATERIAL
C7
100uF
16V
C8
220uF
35V
C800
100nF
25V
MATERIAL
VIN
VOUT
S16VB
S14VB_L
USE BP96-00882A
IC1
MGND1
VIN
VADJ
VO
GND
MGND2
R1
13Kohm
1/10W
R3
187ohm
1/10W
C1
220uF
35V
C2
100nF
25V
MO
Regulator
for Audio Amp-Left
VIN
VOUT
S16VB
S14VB_R
USE BP96-00882A
IC2
R2
13Kohm
1/10W
R4
187ohm
1/10W
C3
220uF
35V
C4
100nF
25V
MO
Regulator
for Audio Amp-Right
12VB
BD719
CIC21J601NE
IC3
LM317SX
VIN
VOUT_1
ADJ
VOUT_2
9VB
R5
845ohm
1/10W
R9
5.1Kohm
1/10W
C18
33uF
25V
C19
100nF
25V
MO
C17
100nF
25V
MO
C20
100uF
16V
C21
100nF
25V
MO
USA OPTION
12VA
9VA
BD721
CIC21J601NE
IC4
BA178M09FP
C11
33uF
25V
C12
100nF
25V
MO
C13
100uF
16V
C14
100nF
25V
MO
USA OPTION
12VA
FAN_SW
BD720
CIC21J601NE
IC5
MIC39102BM
R903
1K
EN
IN
OUT
ADJ
GND
R901
51Kohm
1/10W
R902
9.1Kohm
1/10W
C15
33uF
25V
C16
100nF
25V
MATERIAL
8VA_FAN
C10
100nF
25V
MATERIAL
C9
100uF
16V
5VA
12VA
CN5
FT7
FT8
FT9
FT10
BLM41P600S
C797
100nF
25V
MATERIAL
POD_SW
XREF
C798
100nF
25V
MATERIAL
C22
100uF
25V
Power Signal from SMPS Board
(only for USA)
5VA
5.7VB
12VB
R7
1K
R6
1.2Kohm
1/10W
R8
2K
OP1
OP2
OP3
Power Check Indicator LED
5.7VB
5VB
BD718
CIC21J601NE
IC6
KIA78D05F
C23
22uF
16V
C24
100nF
25V
MO
C25
100uF
16V
C26
100nF
25V
MO

10-1-2 AV_Input

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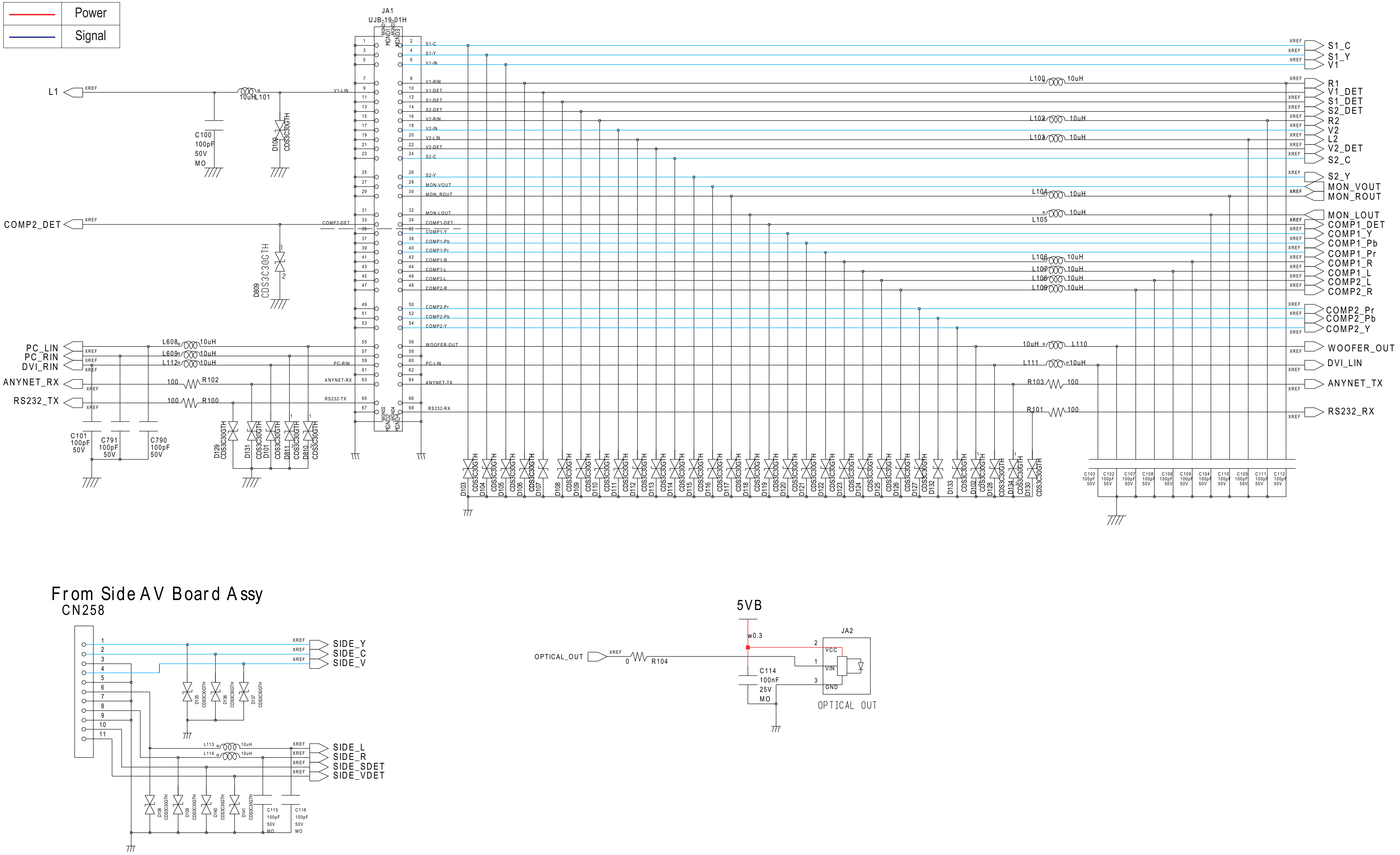
Power
Signal
JA1
UJB-19-01H
L1
COMP2_DET
PC_LIN
PC_RIN
DVI_RIN
ANYNET_RX
RS232_TX
XREF
10uH L101
C100
100pF
50V
MO
D100
CDS3C30GTH
D909
L608 10uH
L609 10uH
L112 10uH
100 R102
100 R100
C101
100pF
50V
C791
100pF
50V
C790
100pF
50V
D129
D131
D101
D811
D810
V1-LIN
COMP2-DET
PC-RIN
ANYNET-RX
RS232-TX
S1-C
S1-Y
V1-IN
V1-RIN
V1-DET
S1-DET
S2-DET
V2-RIN
V2-IN
V2-LIN
V2-DET
S2-C
S2-Y
MON-VOUT
MON_ROUT
MON-LOUT
COMP1-DET
COMP1-Y
COMP1-Pb
COMP1-Pr
COMP1-R
COMP1-L
COMP2-L
COMP2-R
COMP2-Pr
COMP2-Pb
COMP2-Y
WOOFER-OUT
PC-LIN
ANYNET-TX
RS232-RX
L100 10uH
L102 10uH
L103 10uH
L104 10uH
L105 10uH
L106 10uH
L107 10uH
L108 10uH
L109 10uH
10uH L110
L111 10uH
R103 100
R101 100
S1_C
S1_Y
V1
R1
V1_DET
S1_DET
S2_DET
R2
V2
L2
V2_DET
S2_C
S2_Y
MON_VOUT
MON_ROUT
MON_LOUT
COMP1_DET
COMP1_Y
COMP1_Pb
COMP1_Pr
COMP1_R
COMP1_L
COMP2_L
COMP2_R
COMP2_Pr
COMP2_Pb
COMP2_Y
WOOFER_OUT
DVI_LIN
ANYNET_TX
RS232_RX
D103
D104
D105
D106
D107
D108
D109
D110
D111
D112
D113
D114
D115
D116
D117
D118
D119
D120
D121
D122
D123
D124
D125
D126
D127
D132
D133
D102
D128
D134
D130
C103
C102
C107
C108
C106
C109
C104
C110
C105
C111
C112
100pF
50V
From Side AV Board Assy
CN258
SIDE_Y
SIDE_C
SIDE_V
D135
D136
D137
L113 10uH
L114 10uH
SIDE_L
SIDE_R
SIDE_SDET
SIDE_VDET
D138
D139
D140
D141
C115
100pF
50V
MO
C116
100pF
50V
MO
5VB
w0.3
OPTICAL_OUT
0 R104
C114
100nF
25V
MO
JA2
VCC
VIN
GND
OPTICAL OUT

10-1-3 AV_Switching

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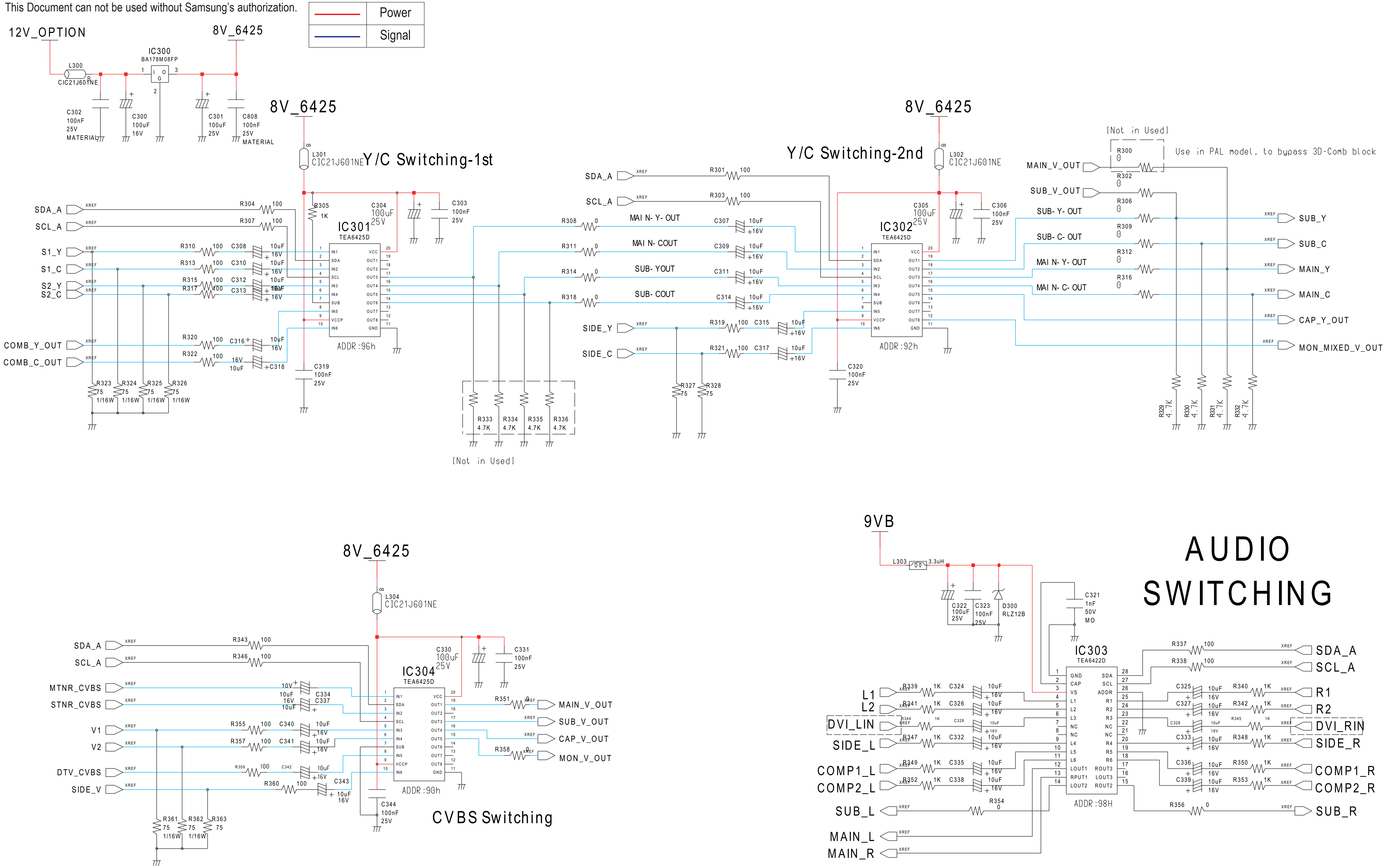
Power
Signal
12V_OPTION
8V_6425
IC300
BA178M08FP
L300
CIC21J601NE
C302 100nF 25V MATERIAL
C300 100uF 16V
C301 100uF 25V
C808 100nF 25V MATERIAL
Y/C Switching-1st
L301 CIC21J601NE
IC301
TEA6425D
ADDR:96h
SDA_A
SCL_A
S1_Y
S1_C
S2_Y
S2_C
COMB_Y_OUT
COMB_C_OUT
[Not in Used]
R333 4.7K
R334 4.7K
R335 4.7K
R336 4.7K
Y/C Switching-2nd
L302 CIC21J601NE
IC302
TEA6425D
ADDR:92h
MAIN-Y-OUT
MAIN-COUT
SUB-YOUT
SUB-COUT
SIDE_Y
SIDE_C
[Not in Used]
Use in PAL model, to bypass 3D-Comb block
MAIN_V_OUT
SUB_V_OUT
SUB-Y-OUT
SUB-C-OUT
MAIN-Y-OUT
MAIN-C-OUT
SUB_Y
SUB_C
MAIN_Y
MAIN_C
CAP_Y_OUT
MON_MIXED_V_OUT
R329 4.7K
R330 4.7K
R331 4.7K
R332 4.7K
8V_6425
L304 CIC21J601NE
IC304
TEA6425D
ADDR:90h
CVBS Switching
SDA_A
SCL_A
MTNR_CVBS
STNR_CVBS
V1
V2
DTV_CVBS
SIDE_V
MAIN_V_OUT
SUB_V_OUT
CAP_V_OUT
MON_V_OUT
9VB
L303 3.3uH
C322 100uF 25V
C323 100nF 25V
D300 RLZ12B
C321 1nF 50V MO
AUDIO SWITCHING
IC303
TEA6422D
ADDR:98H
L1
L2
DVI_LIN
SIDE_L
COMP1_L
COMP2_L
SUB_L
MAIN_L
MAIN_R
SDA_A
SCL_A
R1
R2
DVI_RIN
SIDE_R
COMP1_R
COMP2_R
SUB_R

10-1-4 Input_Buffer

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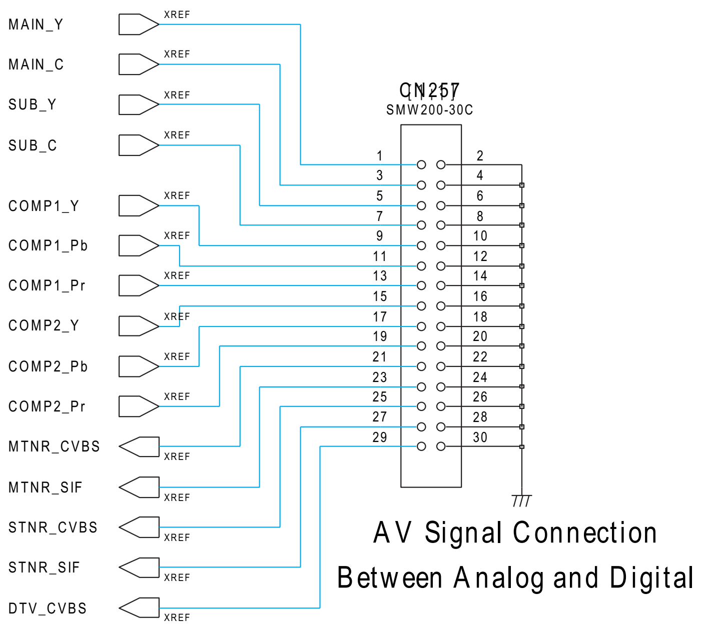
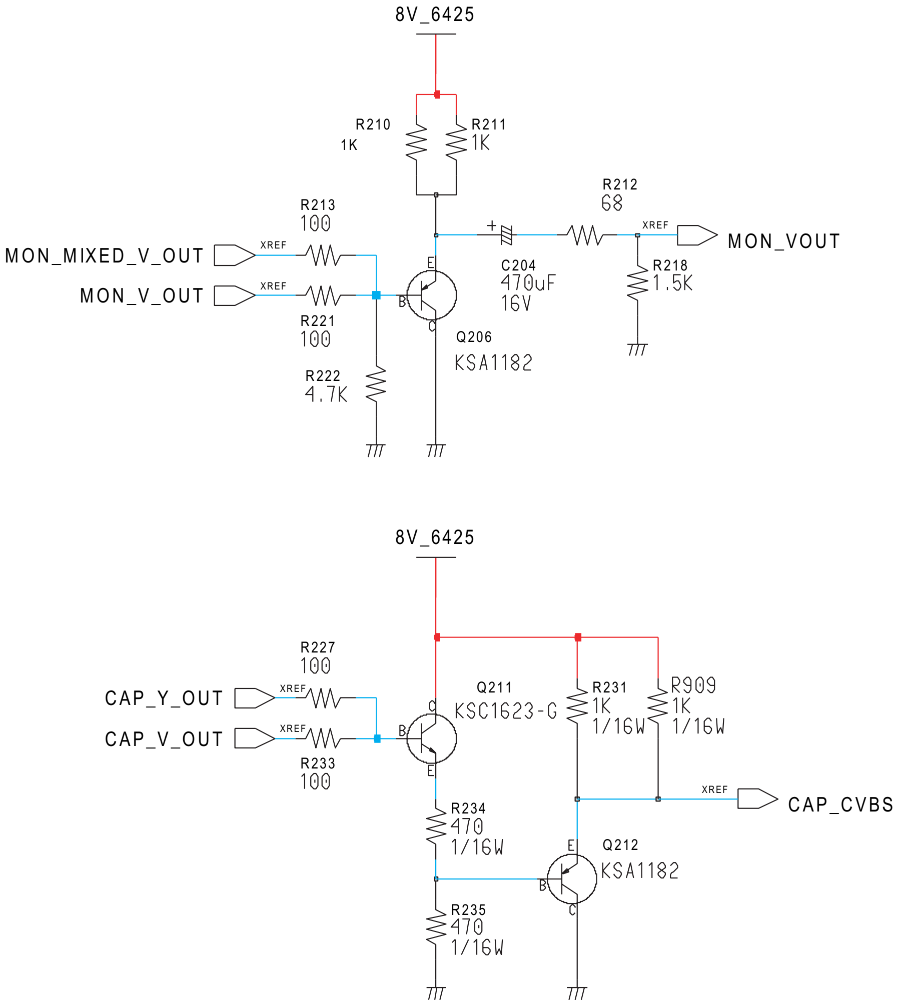
🟥	Power
🟦	Signal


MAIN_Y
MAIN_C
SUB_Y
SUB_C
COMP1_Y
COMP1_Pb
COMP1_Pr
COMP2_Y
COMP2_Pb
COMP2_Pr
MTNR_CVBS
MTNR_SIF
STNR_CVBS
STNR_SIF
DTV_CVBS
XREF
CN257
SMW200-30C
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
AV Signal Connection
Between Analog and Digital


8V_6425
R210
1K
R211
1K
R213
100
R212
68
MON_MIXED_V_OUT
MON_V_OUT
XREF
R221
100
R222
4.7K
C204
470uF
16V
Q206
KSA1182
R218
1.5K
MON_VOUT
8V_6425
R227
100
CAP_Y_OUT
CAP_V_OUT
R233
100
Q211
KSC1623-G
R231
1K
1/16W
R909
1K
1/16W
CAP_CVBS
R234
470
1/16W
Q212
KSA1182
R235
470
1/16W
B
C
E

10-1-5 3D_Comb

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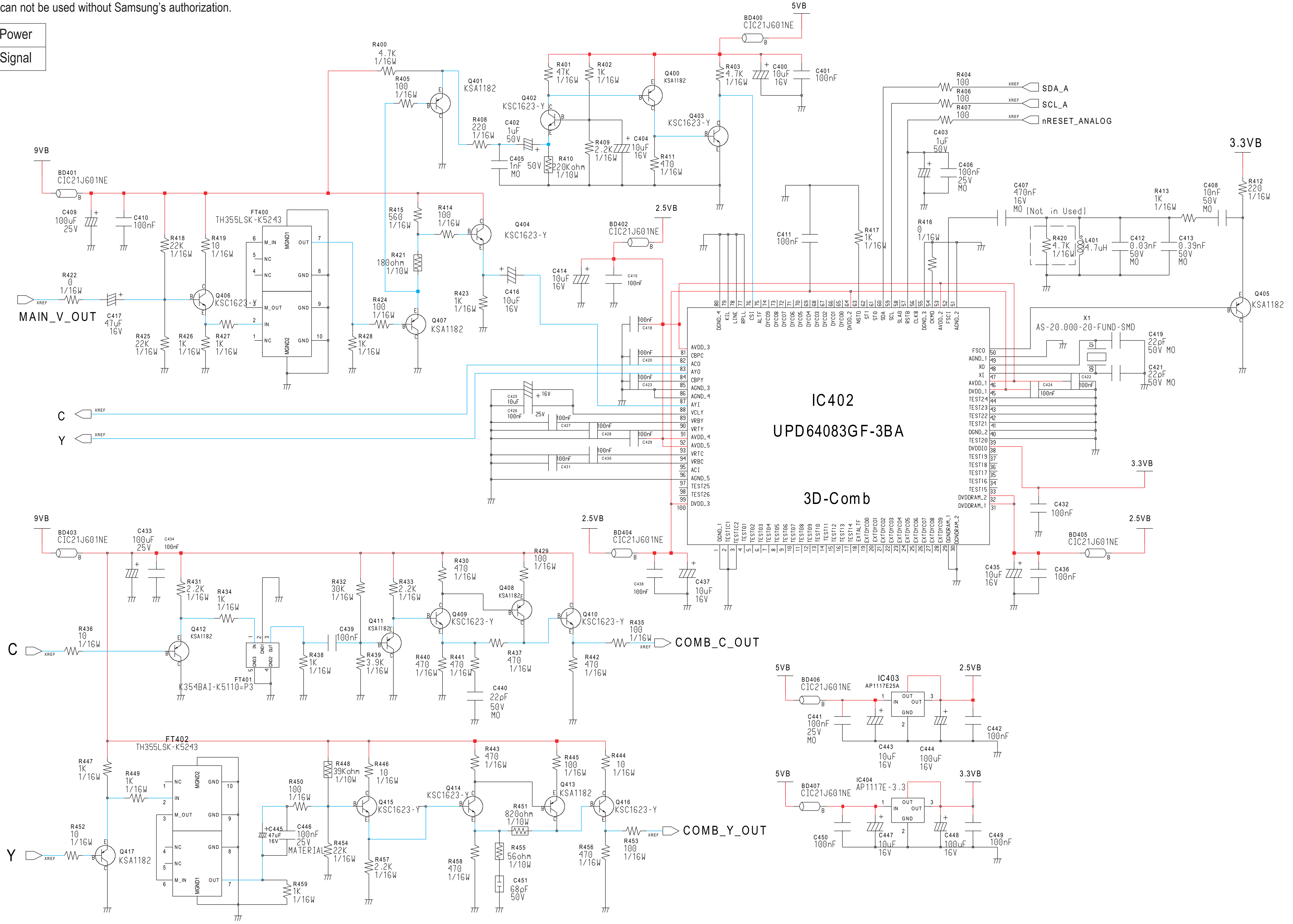
—	Power
—	Signal


5VB
BD400
CIC21J601NE
R400
4.7K
1/16W
R405
100
1/16W
Q401
KSA1182
R401
47K
1/16W
R402
1K
1/16W
Q400
KSA1182
R403
4.7K
1/16W
C400
10uF
16V
C401
100nF
Q402
KSC1623-Y
R408
220
1/16W
C402
1uF
50V
C405
1nF 50V
MO
R410
220Kohm
1/10W
R409
2.2K
1/16W
C404
10uF
16V
Q403
KSC1623-Y
R411
470
1/16W
R404
100
R406
100
R407
100
SDA_A
SCL_A
nRESET_ANALOG
C403
1uF
50V
C406
100nF
25V
MO
3.3VB
9VB
BD401
CIC21J601NE
C409
100uF
25V
C410
100nF
R418
22K
1/16W
R419
10
1/16W
FT400
TH355LSK-K5243
M_IN
MGND1
OUT
NC
GND
M_OUT
IN
MGND2
R415
560
1/16W
R414
100
1/16W
Q404
KSC1623-Y
R421
180ohm
1/10W
2.5VB
BD402
CIC21J601NE
C411
100nF
R417
1K
1/16W
R416
0
1/16W
C407
470nF
16V
MO [Not in Used]
R413
1K
1/16W
C408
10nF
50V
MO
R412
220
1/16W
R420
4.7K
1/16W
L401
4.7uH
C412
0.03nF
50V
MO
C413
0.39nF
50V
MO
R422
0
1/16W
MAIN_V_OUT
C417
47uF
16V
Q406
KSC1623-Y
R425
22K
1/16W
R426
1K
1/16W
R427
1K
1/16W
R424
100
1/16W
R428
1K
1/16W
Q407
KSA1182
R423
1K
1/16W
C416
10uF
16V
C414
10uF
16V
C415
100nF
Q405
KSA1182
X1
AS-20.000-20-FUND-SMD
C419
22pF
50V MO
C421
22pF
50V MO
C418
C420
C423
C425
10uF
16V
C426
100nF
25V
C427
C428
C429
C430
C431
100nF
C422
C424
IC402
UPD64083GF-3BA
3D-Comb
AVDD_3
CBPC
ACO
AYO
CBPY
AGND_3
AGND_4
AYI
VCLY
VRBY
VRTY
AVDD_4
AVDD_5
VRTC
VRBC
ACI
AGND_5
TEST25
TEST26
DVDD_3
FSCO
AGND_1
XO
XI
AVDD_1
DVDD_1
TEST24
TEST23
TEST22
TEST21
DGND_2
TEST20
DVDDIO
TEST19
TEST18
TEST17
TEST16
TEST15
DVDDRAM_2
DVDDRAM_1
C
Y
3.3VB
C432
100nF
9VB
BD403
CIC21J601NE
C433
100uF
25V
C434
100nF
R431
2.2K
1/16W
R434
1K
1/16W
Q412
KSA1182
R436
10
1/16W
C
FT401
K354BAI-K5110=P3
R432
30K
1/16W
R433
2.2K
1/16W
C439
100nF
Q411
KSA1182
R438
1K
1/16W
R439
3.9K
1/16W
R430
470
1/16W
Q408
KSA1182
Q409
KSC1623-Y
R440
470
1/16W
R441
470
1/16W
R437
470
1/16W
C440
22pF
50V
MO
R429
100
1/16W
Q410
KSC1623-Y
R435
100
1/16W
R442
470
1/16W
COMB_C_OUT
2.5VB
BD404
CIC21J601NE
C438
100nF
C437
10uF
16V
C435
10uF
16V
C436
100nF
BD405
CIC21J601NE
2.5VB
5VB
BD406
CIC21J601NE
IC403
AP1117E25A
IN
OUT
GND
C441
100nF
25V
MO
C443
10uF
16V
C444
100uF
16V
C442
100nF
5VB
BD407
CIC21J601NE
IC404
AP1117E-3.3
3.3VB
C450
100nF
C447
10uF
16V
C448
100uF
16V
C449
100nF
FT402
TH355LSK-K5243
R447
1K
1/16W
R449
1K
1/16W
R452
10
1/16W
Y
Q417
KSA1182
R450
100
1/16W
C445
47uF
16V
C446
100nF
25V
MATERIAL
R448
39Kohm
1/10W
R454
22K
1/16W
R459
1K
1/16W
R446
10
1/16W
Q415
KSC1623-Y
R457
2.2K
1/16W
Q414
KSC1623-Y
R443
470
1/16W
R458
470
1/16W
R451
820ohm
1/10W
R455
56ohm
1/10W
C451
68pF
50V
R445
100
1/16W
Q413
KSA1182
R456
470
1/16W
R444
10
1/16W
Q416
KSC1623-Y
R453
100
1/16W
COMB_Y_OUT
XREF

10-1-6 DC-DC

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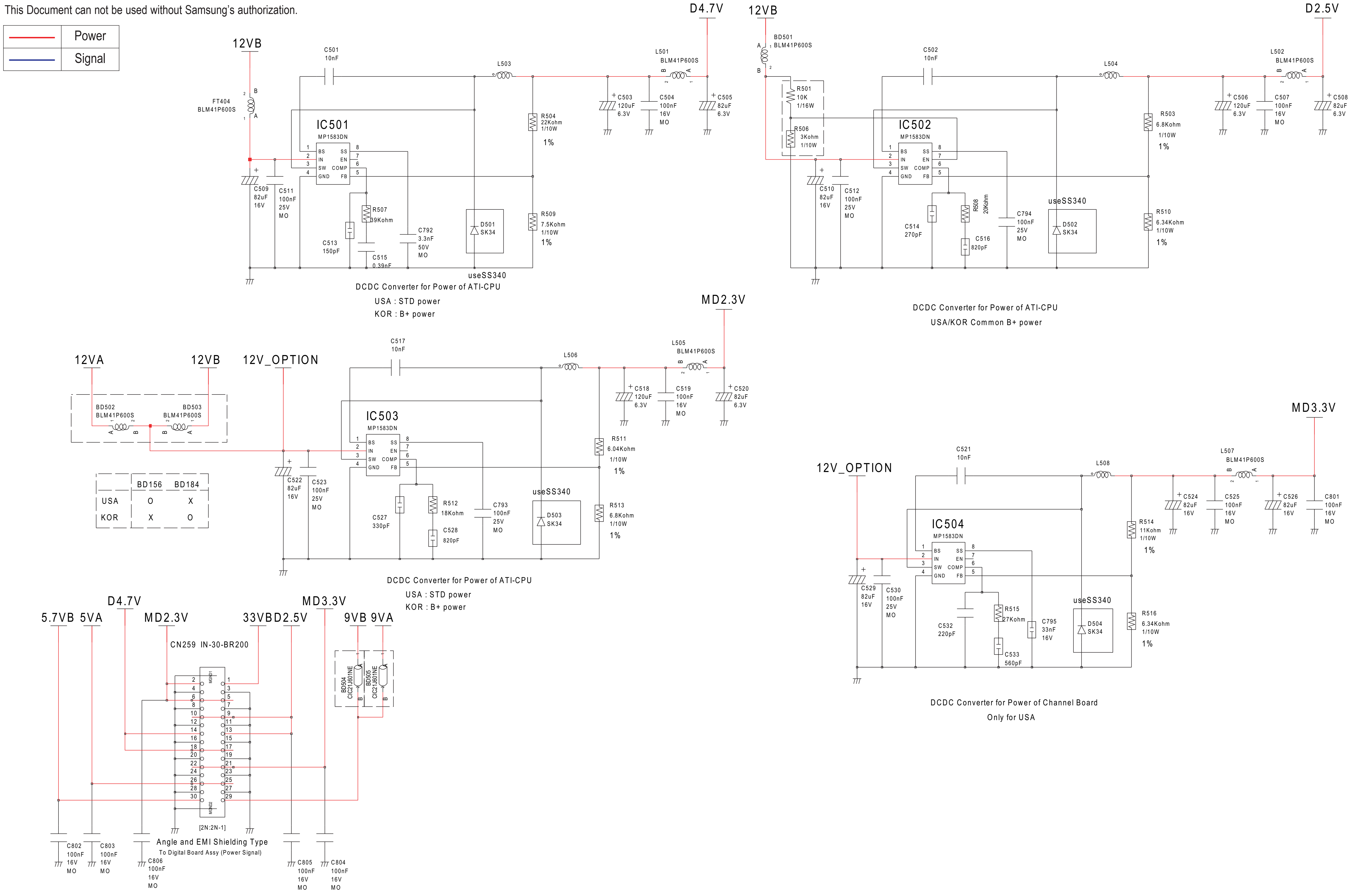
Power
Signal
12VB
D4.7V
C501 10nF
L503
L501 BLM41P600S
FT404 BLM41P600S
IC501 MP1583DN
BS SS EN COMP FB IN SW GND
C503 120uF 6.3V
C504 100nF 16V MO
C505 82uF 6.3V
R504 22Kohm 1/10W 1%
C509 82uF 16V
C511 100nF 25V MO
R507 39Kohm
C513 150pF
C515 0.39nF
C792 3.3nF 50V MO
D501 SK34
useSS340
R509 7.5Kohm 1/10W 1%
12VB
BD501 BLM41P600S
D2.5V
C502 10nF
L504
L502 BLM41P600S
R501 10K 1/16W
R506 3Kohm 1/10W
IC502 MP1583DN
C506 120uF 6.3V
C507 100nF 16V MO
C508 82uF 6.3V
R503 6.8Kohm 1/10W 1%
C510 82uF 16V
C512 100nF 25V MO
C514 270pF
R508 20Kohm
C516 820pF
C794 100nF 25V MO
useSS340
D502 SK34
R510 6.34Kohm 1/10W 1%
MD2.3V
12VA
12VB
12V_OPTION
BD502 BLM41P600S
BD503 BLM41P600S
C517 10nF
L506
L505 BLM41P600S
IC503 MP1583DN
C518 120uF 6.3V
C519 100nF 16V MO
C520 82uF 6.3V
R511 6.04Kohm 1/10W 1%
C522 82uF 16V
C523 100nF 25V MO
C527 330pF
R512 18Kohm
C528 820pF
C793 100nF 25V MO
useSS340
D503 SK34
R513 6.8Kohm 1/10W 1%
MD3.3V
12V_OPTION
C521 10nF
L508
L507 BLM41P600S
IC504 MP1583DN
C524 82uF 16V
C525 100nF 16V MO
C526 82uF 16V
C801 100nF 16V MO
R514 11Kohm 1/10W 1%
C529 82uF 16V
C530 100nF 25V MO
C532 220pF
R515 27Kohm
C533 560pF
C795 33nF 16V
useSS340
D504 SK34
R516 6.34Kohm 1/10W 1%
D4.7V
MD3.3V
5.7VB
5VA
MD2.3V
33VB
D2.5V
9VB
9VA
CN259 IN-30-BR200
BD504 CIC21J601NE
BD505 CIC21J601NE
[2N:2N-1]
C802 100nF 16V MO
C803 100nF 16V MO
C806 100nF 16V MO
C805 100nF 16V MO
C804 100nF 16V MO

DCDC Converter for Power of ATI-CPU
USA : STD power
KOR : B+ power

DCDC Converter for Power of ATI-CPU
USA/KOR Common B+ power

	BD156	BD184
USA	O	X
KOR	X	O

DCDC Converter for Power of ATI-CPU
USA : STD power
KOR : B+ power

Angle and EMI Shielding Type
To Digital Board Assy (Power Signal)

DCDC Converter for Power of Channel Board
Only for USA

10-1-7 Sound Processor/Amp

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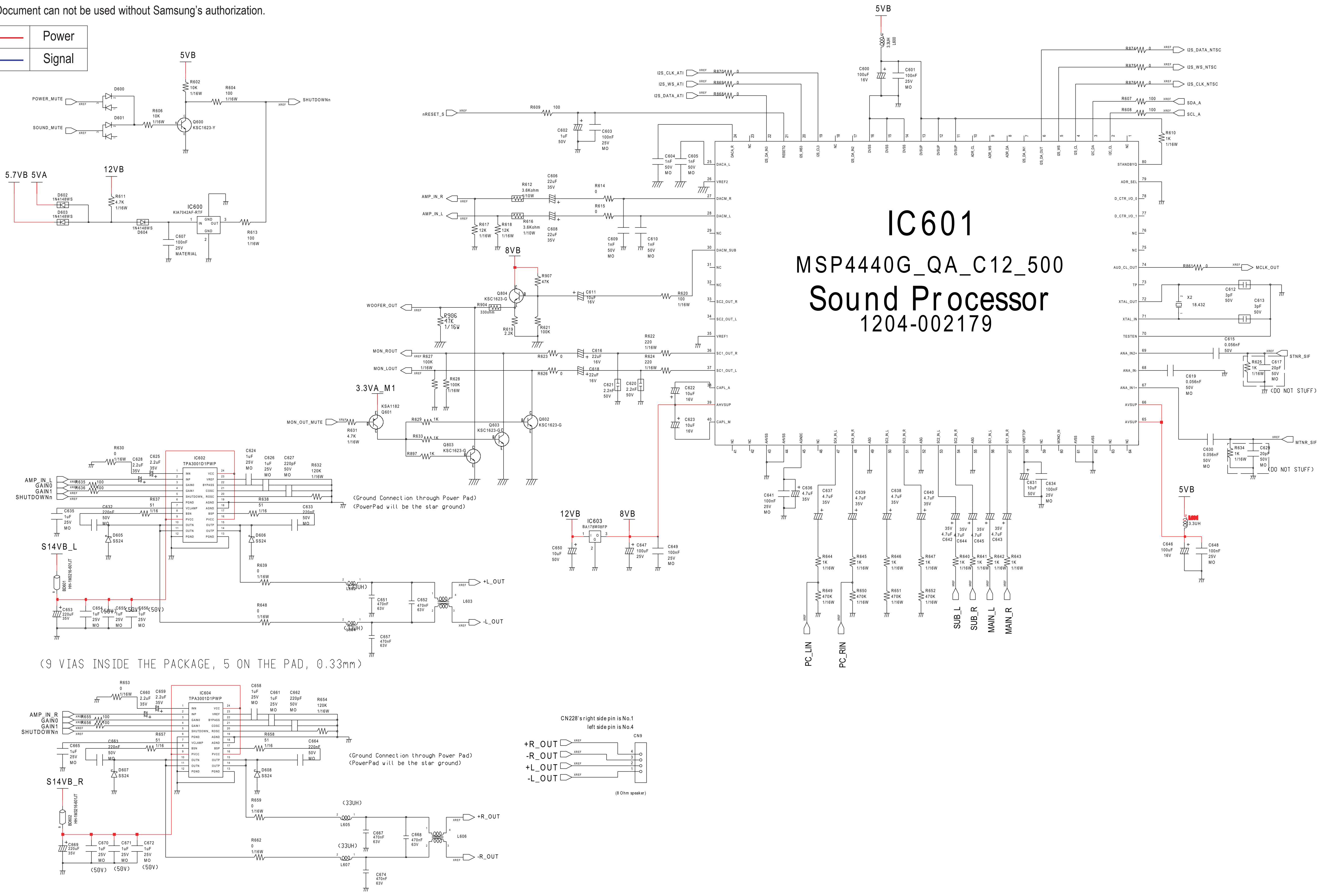
🟥	Power
🟦	Signal


5VB
5.7VB
5VA
12VB
8VB
3.3VA_M1
POWER_MUTE
SOUND_MUTE
SHUTDOWNn
Q600 KSC1623-Y
IC600 KIA7042AF-RTF
I2S_CLK_ATI
I2S_WS_ATI
I2S_DATA_ATI
nRESET_S
I2S_DATA_NTSC
I2S_WS_NTSC
I2S_CLK_NTSC
SDA_A
SCL_A
MCLK_OUT
STNR_SIF
MTNR_SIF
AMP_IN_R
AMP_IN_L
WOOFER_OUT
MON_ROUT
MON_LOUT
MON_OUT_MUTE
Q604 KSC1623-G
Q601 KSA1182
Q602 KSC1623-G
Q603 KSC1623-G
IC601
MSP4440G_QA_C12_500
Sound Processor
1204-002179
X2 18.432
(DO NOT STUFF)
IC602 TPA3001D1PWP
IC604 TPA3001D1PWP
IC603 BA178M08FP
AMP_IN_L
GAIN0
GAIN1
SHUTDOWNn
AMP_IN_R
S14VB_L
S14VB_R
(Ground Connection through Power Pad)
(PowerPad will be the star ground)
(9 VIAS INSIDE THE PACKAGE, 5 ON THE PAD, 0.33mm)
(33UH)
+L_OUT
-L_OUT
+R_OUT
-R_OUT
L603
L605
L606
L607
CN228's right side pin is No.1
left side pin is No.4
CN9
(8 Ohm speaker)
PC_LIN
PC_RIN
SUB_L
SUB_R
MAIN_L
MAIN_R

10-1-8 M1_PCF8574_UART

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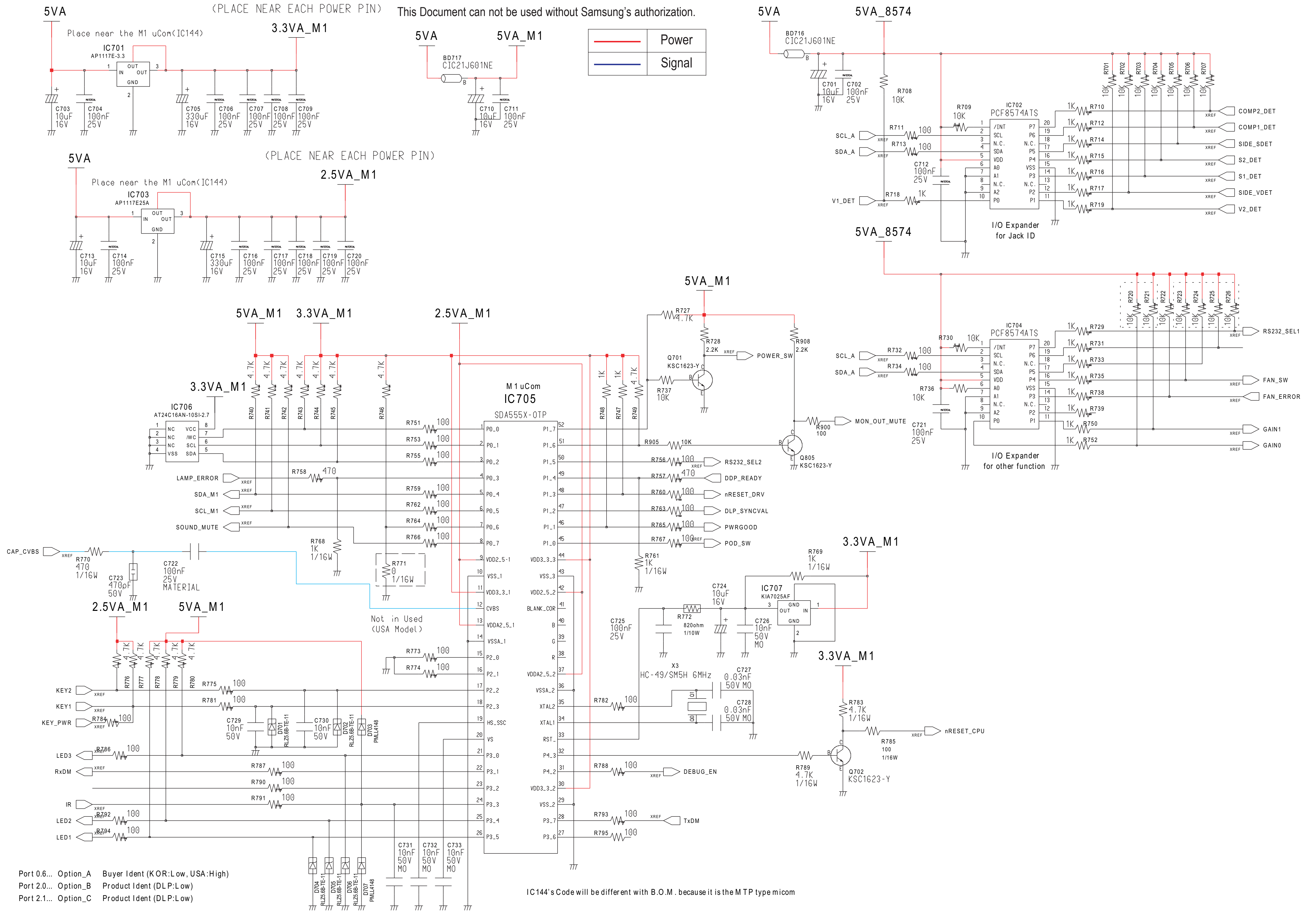
🟥	Power
🟦	Signal


5VA
(PLACE NEAR EACH POWER PIN)
3.3VA_M1
Place near the M1 uCom(IC144)
IC701
AP1117E-3.3
C703 10uF 16V
C704 100nF 25V
C705 330uF 16V
C706 100nF 25V
C707 100nF 25V
C708 100nF 25V
C709 100nF 25V
5VA_M1
BD717
CIC21J601NE
C710 10uF 16V
C711 100nF 25V
2.5VA_M1
IC703
AP1117E25A
C713 10uF 16V
C714 100nF 25V
C715 330uF 16V
C716 100nF 25V
C717 100nF 25V
C718 100nF 25V
C719 100nF 25V
C720 100nF 25V
5VA_8574
BD716
CIC21J601NE
C701 10uF 16V
C702 100nF 25V
R708 10K
R709 10K
IC702
PCF8574ATS
R701
R702
R703
R704
R705
R706
R707
COMP2_DET
COMP1_DET
SIDE_SDET
S2_DET
S1_DET
SIDE_VDET
V2_DET
SCL_A
SDA_A
V1_DET
C712 100nF 25V
I/O Expander
for Jack ID
IC704
PCF8574ATS
R720
R721
R722
R723
R724
R725
R726
RS232_SEL1
FAN_SW
FAN_ERROR
GAIN1
GAIN0
C721 100nF 25V
I/O Expander
for other function
MON_OUT_MUTE
R900 100
Q805
KSC1623-Y
R727 4.7K
R728 2.2K
R908 2.2K
POWER_SW
Q701
KSC1623-Y
R737 10K
R905 10K
IC706
AT24C16AN-10SI-2.7
M1 uCom
IC705
SDA555X-OTP
LAMP_ERROR
SDA_M1
SCL_M1
SOUND_MUTE
CAP_CVBS
R770 470 1/16W
C723 470pF 50V
C722 100nF 25V MATERIAL
R768 1K 1/16W
R771 0 1/16W
Not in Used
(USA Model)
RS232_SEL2
DDP_READY
nRESET_DRV
DLP_SYNCVAL
PWRGOOD
POD_SW
R761 1K 1/16W
R769 1K 1/16W
IC707
KIA7025AF
C724 10uF 16V
C725 100nF 25V
R772 820ohm 1/10W
C726 10nF 50V MO
X3
HC-49/SM5H 6MHz
C727 0.03nF 50V MO
C728 0.03nF 50V MO
R783 4.7K 1/16W
nRESET_CPU
R785 100 1/16W
R789 4.7K 1/16W
Q702
KSC1623-Y
DEBUG_EN
TxDM
KEY2
KEY1
KEY_PWR
LED3
RxDM
IR
LED2
LED1
C729 10nF 50V
C730 10nF 50V
C731 10nF 50V MO
C732 10nF 50V MO
C733 10nF 50V MO
D701 RLZ5.6B-TE-11
D702 RLZ5.6B-TE-11
D703 PMLL4148
D704 RLZ5.6B-TE-11
D705 RLZ5.6B-TE-11
D706 RLZ5.6B-TE-11
D707 PMLL4148

Port 0.6... Option_A Buyer Ident (KOR:Low, USA:High)
Port 2.0... Option_B Product Ident (DLP:Low)
Port 2.1... Option_C Product Ident (DLP:Low)

IC144's Code will be different with B.O.M. because it is the MTP type micom

10-1-9 Signal Connection

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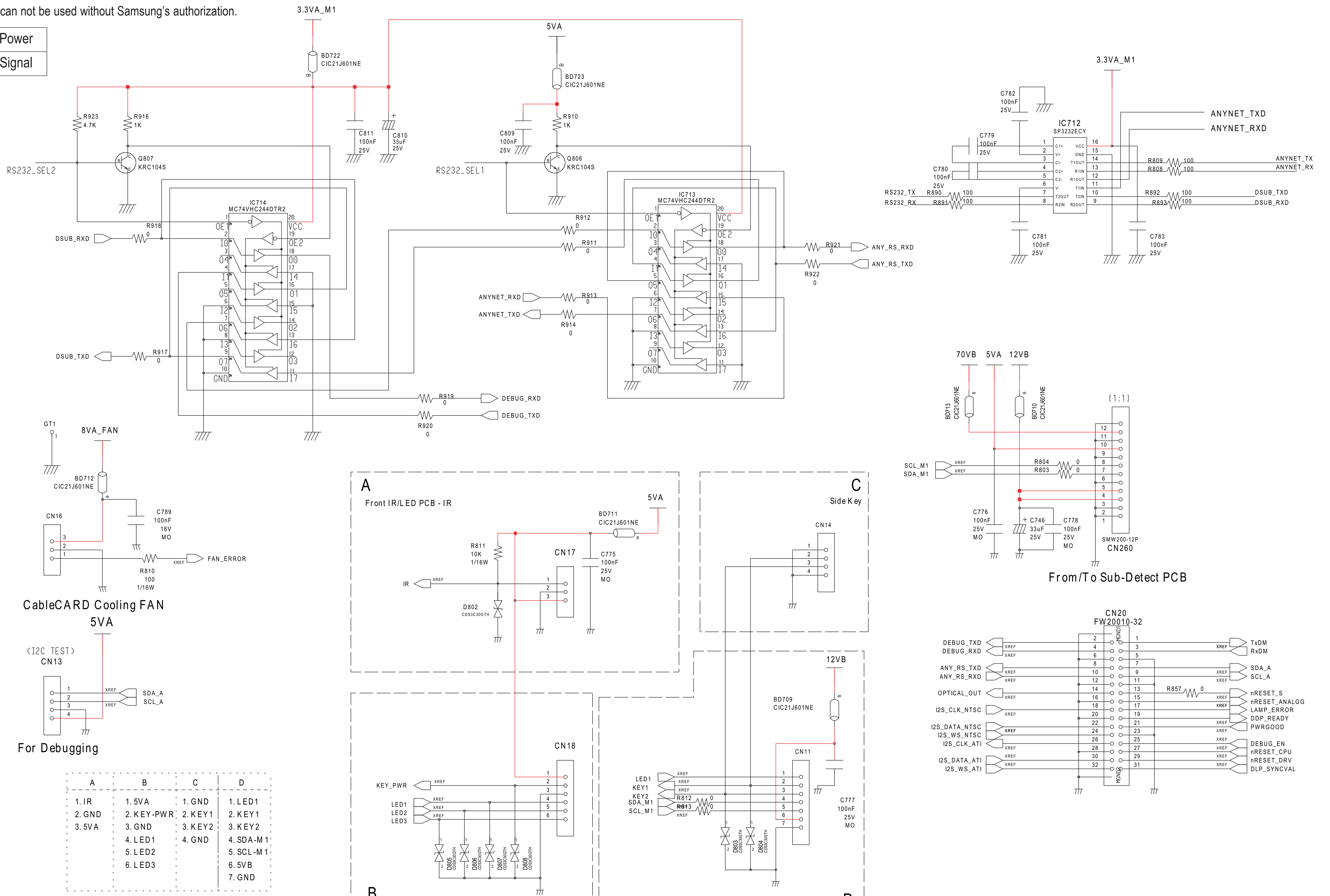
🟥	Power
🟦	Signal


3.3VA_M1
BD722
CIC21J601NE
5VA
BD723
CIC21J601NE
R923
4.7K
R916
1K
C811
100nF
25V
C810
33uF
25V
C809
100nF
25V
R910
1K
RS232_SEL2
Q807
KRC104S
RS232_SEL1
Q806
KRC104S
IC714
MC74VHC244DTR2
IC713
MC74VHC244DTR2
OE1
VCC
OE2
GND
R918
0
DSUB_RXD
R917
0
DSUB_TXD
R912
0
R911
0
R913
0
R914
0
ANYNET_RXD
ANYNET_TXD
R921
0
R922
0
ANY_RS_RXD
ANY_RS_TXD
R919
0
R920
0
DEBUG_RXD
DEBUG_TXD
3.3VA_M1
C782
100nF
25V
C779
100nF
25V
C780
100nF
25V
IC712
SP3232ECY
ANYNET_TXD
ANYNET_RXD
R809
100
R808
100
ANYNET_TX
ANYNET_RX
RS232_TX
R890
100
RS232_RX
R891
100
R892
100
R893
100
DSUB_TXD
DSUB_RXD
C781
100nF
25V
C783
100nF
25V
70VB
5VA
12VB
BD713
CIC21J601NE
BD710
CIC21J601NE
[1:1]
SCL_M1
SDA_M1
R804
0
R803
0
C776
100nF
25V
MO
C746
33uF
25V
C778
100nF
25V
MO
SMW200-12P
CN260
From/To Sub-Detect PCB
GT1
8VA_FAN
BD712
CIC21J601NE
C789
100nF
16V
MO
CN16
R810
100
1/16W
FAN_ERROR
CableCARD Cooling FAN
5VA
(I2C TEST)
CN13
SDA_A
SCL_A
For Debugging
A
Front IR/LED PCB - IR
5VA
BD711
CIC21J601NE
R811
10K
1/16W
CN17
C775
100nF
25V
MO
IR
D802
CDS3C30GTH
C
Side Key
CN14
B
Front IR/LED PCB - LED
CN18
KEY_PWR
LED1
LED2
LED3
D805
D806
D807
D808
CDS3C30GTH
L7 CABINET
D
Front KEY/LED
12VB
BD709
CIC21J601NE
CN11
LED1
KEY1
KEY2
SDA_M1
SCL_M1
R812
0
R813
0
D803
D804
C777
100nF
25V
MO
CN20
FW20010-32
DEBUG_TXD
DEBUG_RXD
ANY_RS_TXD
ANY_RS_RXD
OPTICAL_OUT
I2S_CLK_NTSC
I2S_DATA_NTSC
I2S_WS_NTSC
I2S_CLK_ATI
I2S_DATA_ATI
I2S_WS_ATI
TxDM
RxDM
SDA_A
SCL_A
R857
0
nRESET_S
nRESET_ANALOG
LAMP_ERROR
DDP_READY
PWRGOOD
DEBUG_EN
nRESET_CPU
nRESET_DRV
DLP_SYNCVAL
XREF

A	B	C	D
1. IR	1. 5VA	1. GND	1. LED1
2. GND	2. KEY-PWR	2. KEY1	2. KEY1
3. 5VA	3. GND	3. KEY2	3. KEY2
	4. LED1	4. GND	4. SDA-M1
	5. LED2		5. SCL-M1
	6. LED3		6. 5VB
			7. GND

Used as follows...

L3 : A+B, C
L5 : A, B, C
L7 : A, D

10-2 Digital Board

10-2-1 Digital-1

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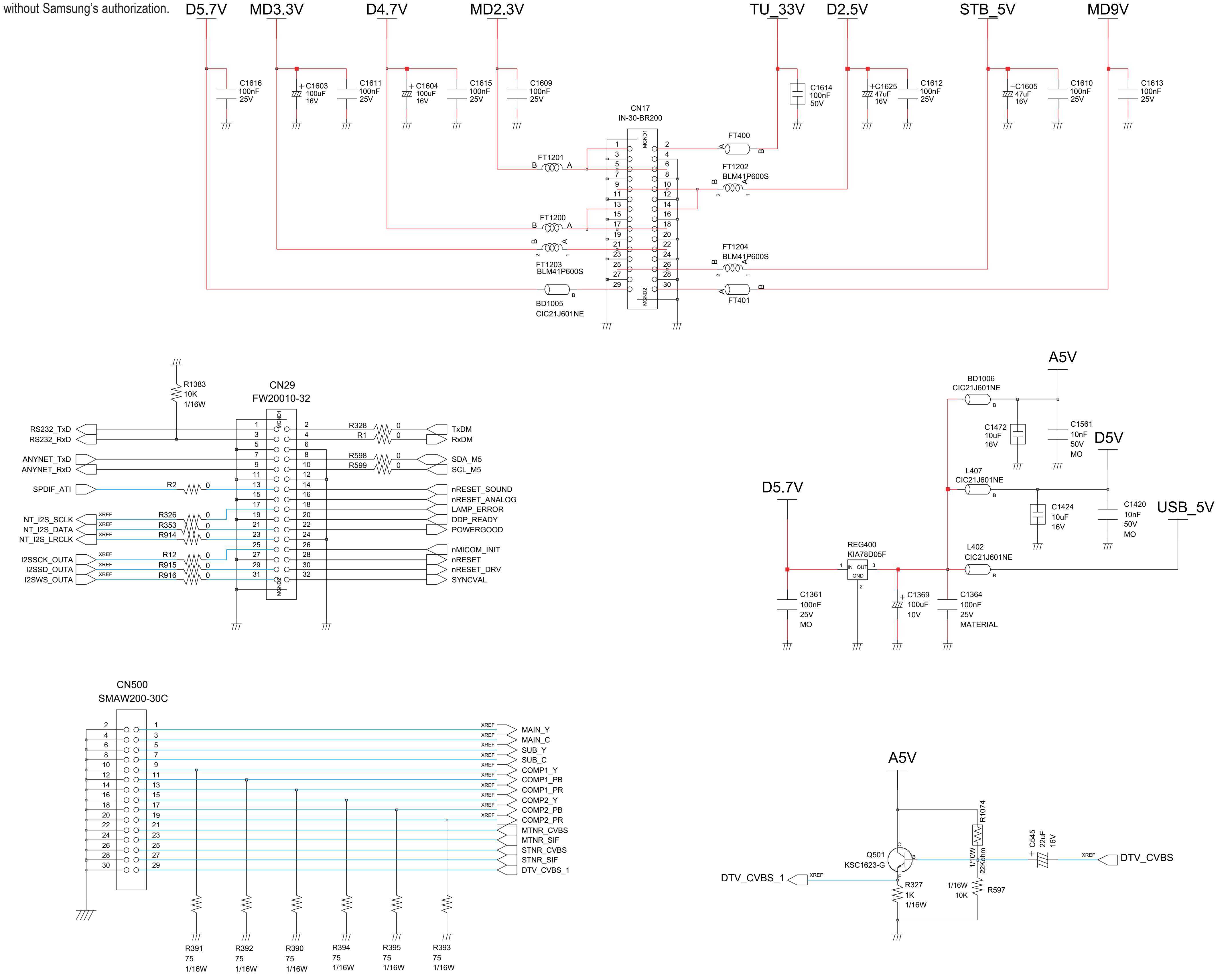
—	Power
—	Signal


D5.7V
MD3.3V
D4.7V
MD2.3V
TU_33V
D2.5V
STB_5V
MD9V
C1616 100nF 25V
C1603 100uF 16V
C1611 100nF 25V
C1604 100uF 16V
C1615 100nF 25V
C1609 100nF 25V
C1614 100nF 50V
C1625 47uF 16V
C1612 100nF 25V
C1605 47uF 16V
C1610 100nF 25V
C1613 100nF 25V
CN17
IN-30-BR200
FT400
FT1201
FT1202 BLM41P600S
FT1200
FT1203 BLM41P600S
FT1204 BLM41P600S
BD1005 CIC21J601NE
FT401
R1383 10K 1/16W
CN29
FW20010-32
RS232_TxD
RS232_RxD
ANYNET_TxD
ANYNET_RxD
SPDIF_ATI
NT_I2S_SCLK
NT_I2S_DATA
NT_I2S_LRCLK
I2SSCK_OUTA
I2SSD_OUTA
I2SWS_OUTA
R2 0
R326 0
R353 0
R914 0
R12 0
R915 0
R916 0
R328 0
R1 0
R598 0
R599 0
TxDM
RxDM
SDA_M5
SCL_M5
nRESET_SOUND
nRESET_ANALOG
LAMP_ERROR
DDP_READY
POWERGOOD
nMICOM_INIT
nRESET
nRESET_DRV
SYNCVAL
XREF
A5V
BD1006 CIC21J601NE
C1472 10uF 16V
C1561 10nF 50V MO
D5V
L407 CIC21J601NE
C1424 10uF 16V
C1420 10nF 50V MO
USB_5V
D5.7V
REG400 KIA78D05F
IN OUT GND
L402 CIC21J601NE
C1361 100nF 25V MO
C1369 100uF 10V
C1364 100nF 25V MATERIAL
CN500
SMAW200-30C
MAIN_Y
MAIN_C
SUB_Y
SUB_C
COMP1_Y
COMP1_PB
COMP1_PR
COMP2_Y
COMP2_PB
COMP2_PR
MTNR_CVBS
MTNR_SIF
STNR_CVBS
STNR_SIF
DTV_CVBS_1
R391 75 1/16W
R392 75 1/16W
R390 75 1/16W
R394 75 1/16W
R395 75 1/16W
R393 75 1/16W
A5V
Q501 KSC1623-G
R1074 1/10W 22Kohm
C545 22uF 16V
DTV_CVBS
DTV_CVBS_1
R327 1K 1/16W
R597 1/16W 10K

10-2-2 Digital-2

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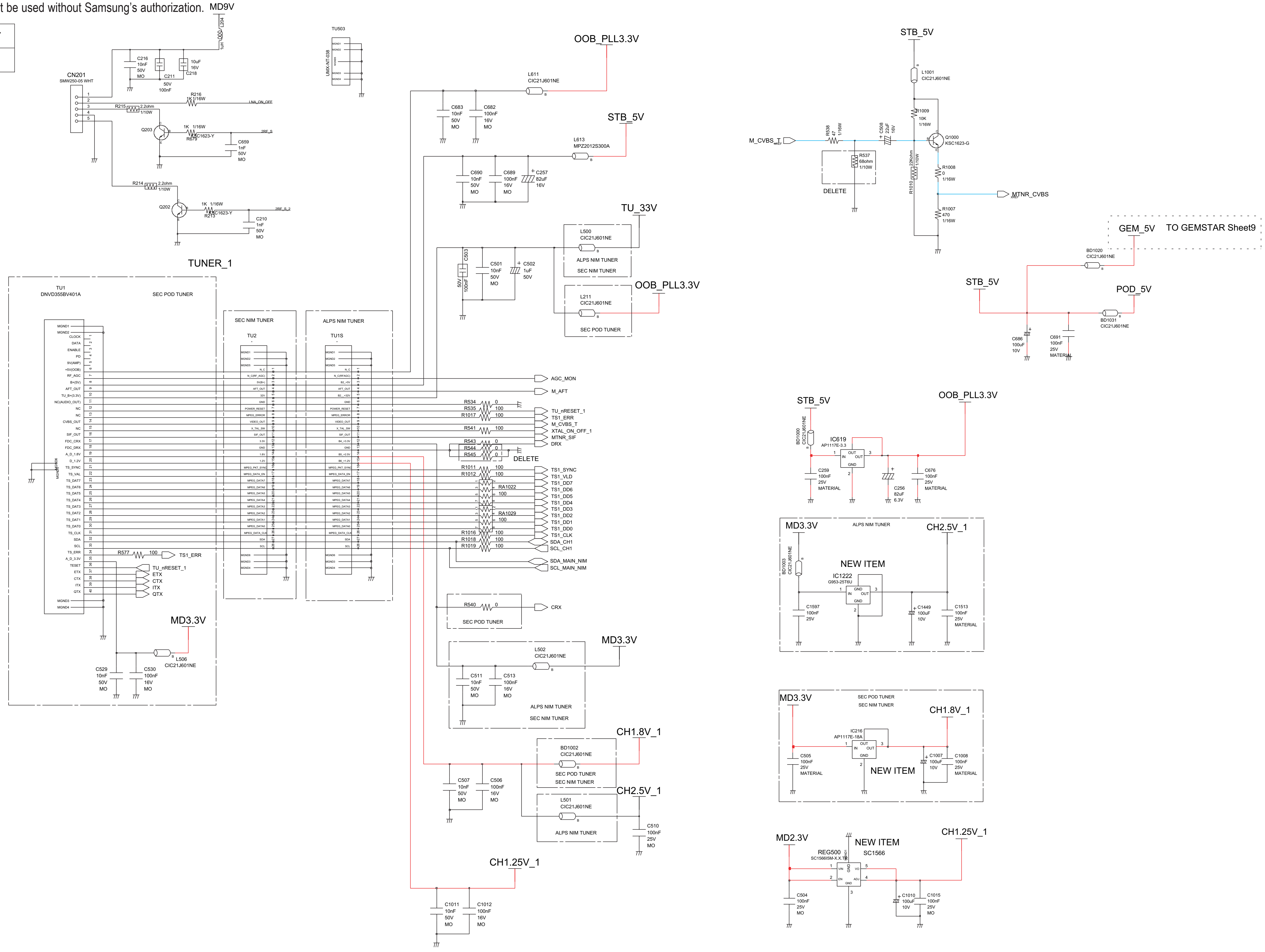
🟥	Power
🟦	Signal


MD9V
L204
CN201
SMW250-05 WHT
C216 10nF 50V MO
C211 50V 100nF
10uF 16V C218
R216 1K 1/16W
LNA_ON_OFF
R215 2.2ohm 1/10W
Q203
KSC1623-Y
R679
C659 1nF 50V MO
RF_S
R214 2.2ohm 1/10W
Q202
KSC1623-Y
R213
C210 1nF 50V MO
RF_S_2
TU503
UMX-NT-038
TUNER_1
TU1
DNVD355BV401A
SEC POD TUNER
R577 100
TS1_ERR
TU_nRESET_1
ETX
CTX
ITX
QTX
MD3.3V
L506 CIC21J601NE
C529 10nF 50V MO
C530 100nF 16V MO
SEC NIM TUNER
TU2
ALPS NIM TUNER
TU1S
OOB_PLL3.3V
L611 CIC21J601NE
C683 10nF 50V MO
C682 100nF 16V MO
STB_5V
L613 MPZ2012S300A
C690 10nF 50V MO
C689 100nF 16V MO
C257 82uF 16V
TU_33V
L500 CIC21J601NE
ALPS NIM TUNER
SEC NIM TUNER
C503 100nF 50V
C501 10nF 50V MO
C502 1uF 50V
OOB_PLL3.3V
L211 CIC21J601NE
SEC POD TUNER
AGC_MON
M_AFT
R534 0
R535 100
R1017 100
R541 100
R543 0
R544 0
R545 0
DELETE
TU_nRESET_1
TS1_ERR
M_CVBS_T
XTAL_ON_OFF_1
MTNR_SIF
DRX
R1011 100
R1012 100
RA1022 100
RA1029 100
TS1_SYNC
TS1_VLD
TS1_DD7
TS1_DD6
TS1_DD5
TS1_DD4
TS1_DD3
TS1_DD2
TS1_DD1
TS1_DD0
TS1_CLK
R1016 100
R1018 100
R1019 100
SDA_CH1
SCL_CH1
SDA_MAIN_NIM
SCL_MAIN_NIM
R540 0
CRX
SEC POD TUNER
MD3.3V
L502 CIC21J601NE
C511 10nF 50V MO
C513 100nF 16V MO
ALPS NIM TUNER
SEC NIM TUNER
CH1.8V_1
BD1002 CIC21J601NE
SEC POD TUNER
SEC NIM TUNER
C507 10nF 50V MO
C506 100nF 16V MO
CH2.5V_1
L501 CIC21J601NE
ALPS NIM TUNER
C510 100nF 25V MO
CH1.25V_1
C1011 10nF 50V MO
C1012 100nF 16V MO
STB_5V
L1001 CIC21J601NE
M_CVBS_T
R538 47 1/16W
C508 22uF 16V
R537 68ohm 1/10W
DELETE
R1009 10K 1/16W
Q1000 KSC1623-G
R1010 22Kohm 1/16W
R1008 0 1/16W
MTNR_CVBS
R1007 470 1/16W
GEM_5V
TO GEMSTAR Sheet9
BD1020 CIC21J601NE
STB_5V
POD_5V
BD1031 CIC21J601NE
C686 100uF 10V
C691 100nF 25V MATERIAL
STB_5V
OOB_PLL3.3V
BD1000 CIC21J601NE
IC619 AP1117E-3.3
C259 100nF 25V MATERIAL
C256 82uF 6.3V
C676 100nF 25V MATERIAL
MD3.3V
ALPS NIM TUNER
CH2.5V_1
BD1003 CIC21J601NE
NEW ITEM
IC1222 G953-25T6U
C1597 100nF 25V
C1449 100uF 10V
C1513 100nF 25V MATERIAL
MD3.3V
SEC POD TUNER
SEC NIM TUNER
CH1.8V_1
IC216 AP1117E-18A
C505 100nF 25V MATERIAL
C1007 100uF 10V
C1008 100nF 25V MATERIAL
NEW ITEM
MD2.3V
NEW ITEM
REG500 SC1566ISM-X.X.TR
SC1566
CH1.25V_1
C504 100nF 25V MO
C1010 100uF 10V
C1015 100nF 25V MO

10-2-3 Digital-3

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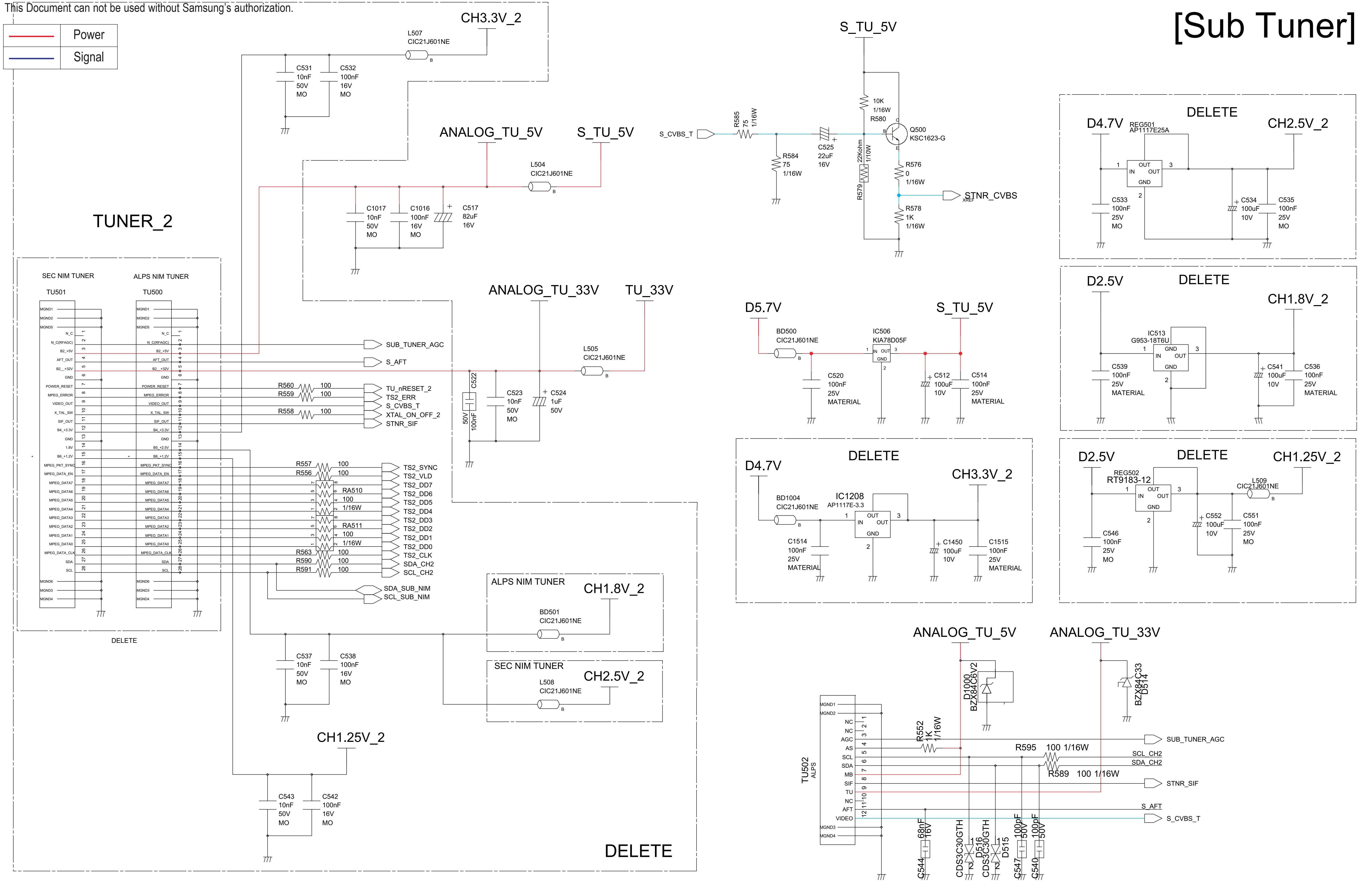
Power
Signal
[Sub Tuner]
TUNER_2
CH3.3V_2
L507
CIC21J601NE
C531 10nF 50V MO
C532 100nF 16V MO
ANALOG_TU_5V
S_TU_5V
L504
CIC21J601NE
C1017 10nF 50V MO
C1016 100nF 16V MO
C517 82uF 16V
SEC NIM TUNER
ALPS NIM TUNER
TU501
TU500
MGND1
MGND2
MGND5
N_C
N_C(RFAGC)
B2_+5V
AFT_OUT
B2_+32V
GND
POWER_RESET
MPEG_ERROR
VIDEO_OUT
X_TAL_SW
SIF_OUT
B4_+3.3V
1.8V
B5_+2.5V
B6_+1.2V
MPEG_PKT_SYNC
MPEG_DATA_EN
MPEG_DATA7
MPEG_DATA6
MPEG_DATA5
MPEG_DATA4
MPEG_DATA3
MPEG_DATA2
MPEG_DATA1
MPEG_DATA0
MPEG_DATA_CLK
SDA
SCL
MGND6
MGND3
MGND4
DELETE
SUB_TUNER_AGC
S_AFT
ANALOG_TU_33V
TU_33V
L505
CIC21J601NE
R560 100
R559 100
R558 100
TU_nRESET_2
TS2_ERR
S_CVBS_T
XTAL_ON_OFF_2
STNR_SIF
C522 50V 100nF
C523 10nF 50V MO
C524 1uF 50V
R557 100
R556 100
RA510 100 1/16W
RA511 100 1/16W
R563 100
R590 100
R591 100
TS2_SYNC
TS2_VLD
TS2_DD7
TS2_DD6
TS2_DD5
TS2_DD4
TS2_DD3
TS2_DD2
TS2_DD1
TS2_DD0
TS2_CLK
SDA_CH2
SCL_CH2
SDA_SUB_NIM
SCL_SUB_NIM
ALPS NIM TUNER
CH1.8V_2
BD501
CIC21J601NE
SEC NIM TUNER
CH2.5V_2
L508
CIC21J601NE
C537 10nF 50V MO
C538 100nF 16V MO
CH1.25V_2
C543 10nF 50V MO
C542 100nF 16V MO
DELETE
S_TU_5V
S_CVBS_T
R585 75 1/16W
R584 75 1/16W
C525 22uF 16V
R579 22Kohm 1/10W
10K 1/16W R580
Q500 KSC1623-G
R576 0 1/16W
STNR_CVBS
R578 1K 1/16W
DELETE
D4.7V
REG501 AP1117E25A
CH2.5V_2
IN OUT OUT GND
C533 100nF 25V MO
C534 100uF 10V
C535 100nF 25V MO
DELETE
D2.5V
CH1.8V_2
IC513 G953-18T6U
C539 100nF 25V MATERIAL
C541 100uF 10V
C536 100nF 25V MATERIAL
D5.7V
S_TU_5V
BD500 CIC21J601NE
IC506 KIA78D05F
C520 100nF 25V MATERIAL
C512 100uF 10V
C514 100nF 25V MATERIAL
DELETE
D4.7V
CH3.3V_2
BD1004 CIC21J601NE
IC1208 AP1117E-3.3
C1514 100nF 25V MATERIAL
C1450 100uF 10V
C1515 100nF 25V MATERIAL
DELETE
D2.5V
CH1.25V_2
REG502 RT9183-12
L509 CIC21J601NE
C546 100nF 25V MO
C552 100uF 10V
C551 100nF 25V MO
ANALOG_TU_5V
ANALOG_TU_33V
D1000 BZX84C6V2
BZX84C33 D514
TU502 ALPS
MGND1
MGND2
NC
NC
AGC
AS
SCL
SDA
MB
SIF
TU
NC
AFT
VIDEO
MGND3
MGND4
R552 1K 1/16W
R595 100 1/16W
R589 100 1/16W
SUB_TUNER_AGC
SCL_CH2
SDA_CH2
STNR_SIF
S_AFT
S_CVBS_T
C544 68nF 16V
CDS3C30GTH D516
CDS3C30GTH D515
C547 100pF 50V
C540 100pF 50V

10-2-4 Digital-4

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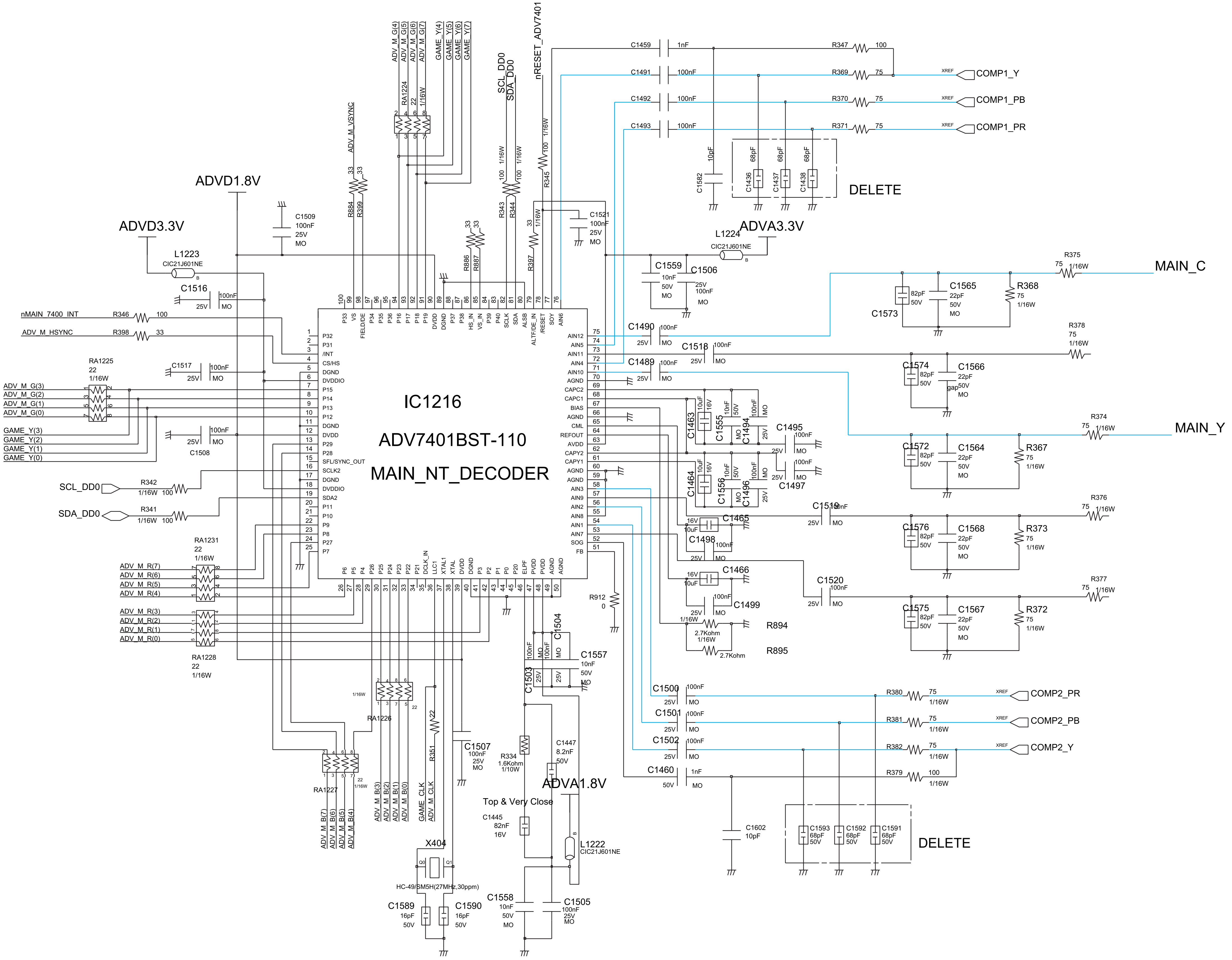
—	Power
—	Signal


IC1216
ADV7401BST-110
MAIN_NT_DECODER
ADVD1.8V
ADVD3.3V
ADVA3.3V
ADVA1.8V
L1223
CIC21J601NE
L1224
CIC21J601NE
L1222
CIC21J601NE
nMAIN_7400_INT
ADV_M_HSYNC
ADV_M_VSYNC
nRESET_ADV7401
SCL_DD0
SDA_DD0
ADV_M_G(3)
ADV_M_G(2)
ADV_M_G(1)
ADV_M_G(0)
ADV_M_G(4)
ADV_M_G(5)
ADV_M_G(6)
ADV_M_G(7)
GAME_Y(3)
GAME_Y(2)
GAME_Y(1)
GAME_Y(0)
GAME_Y(4)
GAME_Y(5)
GAME_Y(6)
GAME_Y(7)
ADV_M_R(7)
ADV_M_R(6)
ADV_M_R(5)
ADV_M_R(4)
ADV_M_R(3)
ADV_M_R(2)
ADV_M_R(1)
ADV_M_R(0)
ADV_M_B(7)
ADV_M_B(6)
ADV_M_B(5)
ADV_M_B(4)
ADV_M_B(3)
ADV_M_B(2)
ADV_M_B(1)
ADV_M_B(0)
GAME_CLK
ADV_M_CLK
RA1224
RA1225
RA1226
RA1227
RA1228
RA1231
COMP1_Y
COMP1_PB
COMP1_PR
COMP2_PR
COMP2_PB
COMP2_Y
MAIN_C
MAIN_Y
DELETE
DELETE
X404
HC-49/SM5H(27MHz,30ppm)
Top & Very Close
C1459 1nF
R347 100
C1491 100nF
R369 75
C1492 100nF
R370 75
C1493 100nF
R371 75
C1582 10pF
C1436 68pF
C1437 68pF
C1438 68pF
C1509 100nF 25V MO
C1521 100nF 25V MO
C1516 100nF
C1517 100nF
C1508 100nF
C1559 10nF 50V MO
C1506 100nF 25V MO
R346 100
R398 33
R342 1/16W 100
R341 1/16W 100
R884 R399 33
R886 R887 33
R343 R344 100 1/16W
R345 100 1/16W
R397 33 1/16W
C1490 100nF
C1518 100nF
C1489 100nF
C1463 10uF 16V
C1555 10nF 50V
C1494 100nF
C1495 100nF
C1497 100nF
C1464 10uF 16V
C1556 10nF 50V
C1496 100nF
C1519 100nF
C1465 10uF 16V
C1498 100nF
C1466 10uF 16V
C1499 100nF
C1520 100nF
R894 2.7Kohm 1/16W
R895 2.7Kohm
R912 0
C1503 100nF
C1504 100nF
C1557 10nF 50V MO
C1507 100nF 25V MO
R351 22
R334 1.6Kohm 1/10W
C1447 8.2nF 50V
C1445 82nF 16V
C1589 16pF 50V
C1590 16pF 50V
C1558 10nF 50V MO
C1505 100nF 25V MO
R375 75 1/16W
C1573 82pF 50V
C1565 22pF 50V MO
R368 75 1/16W
R378 75 1/16W
C1574 82pF 50V
C1566 22pF 50V MO
R374 75 1/16W
C1572 82pF 50V
C1564 22pF 50V MO
R367 75 1/16W
R376 75 1/16W
C1576 82pF 50V
C1568 22pF 50V MO
R373 75 1/16W
R377 75 1/16W
C1575 82pF 50V
C1567 22pF 50V MO
R372 75 1/16W
C1500 100nF
R380 75 1/16W
C1501 100nF
R381 75 1/16W
C1502 100nF
R382 75 1/16W
C1460 1nF 50V MO
R379 100 1/16W
C1602 10pF
C1593 68pF 50V
C1592 68pF 50V
C1591 68pF 50V
XREF

10-2-5 Digital-5

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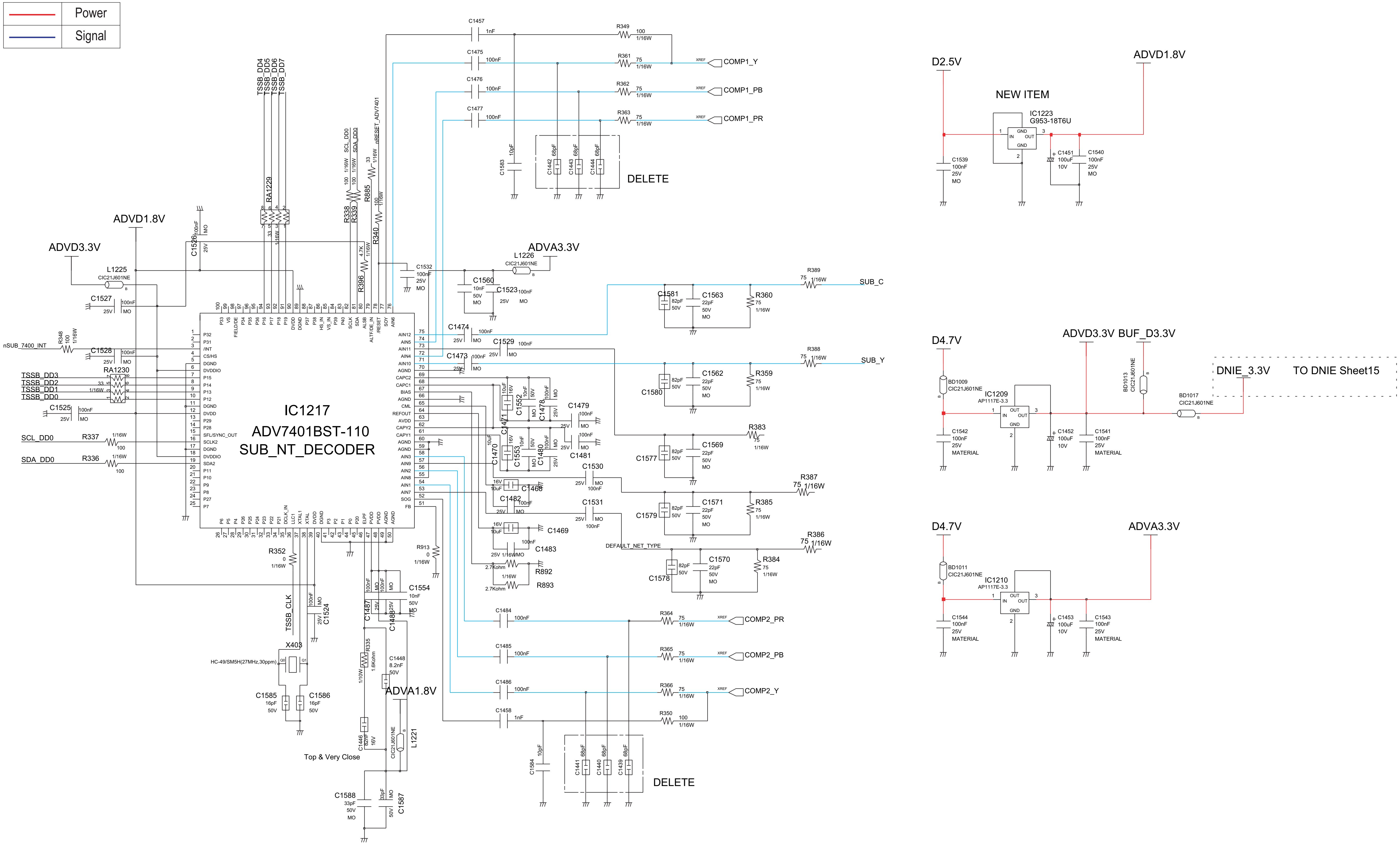
Power
Signal
IC1217
ADV7401BST-110
SUB_NT_DECODER
ADVD1.8V
ADVD3.3V
ADVA3.3V
ADVA1.8V
L1225
L1226
L1221
RA1229
RA1230
TSSB_DD0
TSSB_DD1
TSSB_DD2
TSSB_DD3
TSSB_DD4
TSSB_DD5
TSSB_DD6
TSSB_DD7
TSSB_CLK
SCL_DD0
SDA_DD0
nSUB_7400_INT
nRESET_ADV7401
X403
HC-49/SM5H(27MHz,30ppm)
Top & Very Close
COMP1_Y
COMP1_PB
COMP1_PR
COMP2_PR
COMP2_PB
COMP2_Y
SUB_C
SUB_Y
DEFAULT_NET_TYPE
DELETE
DELETE
D2.5V
ADVD1.8V
NEW ITEM
IC1223
G953-18T6U
D4.7V
ADVD3.3V BUF_D3.3V
DNIE_3.3V
TO DNIE Sheet15
IC1209
AP1117E-3.3
BD1009
BD1013
BD1017
D4.7V
ADVA3.3V
IC1210
AP1117E-3.3
BD1011

10-2-6 Digital-6

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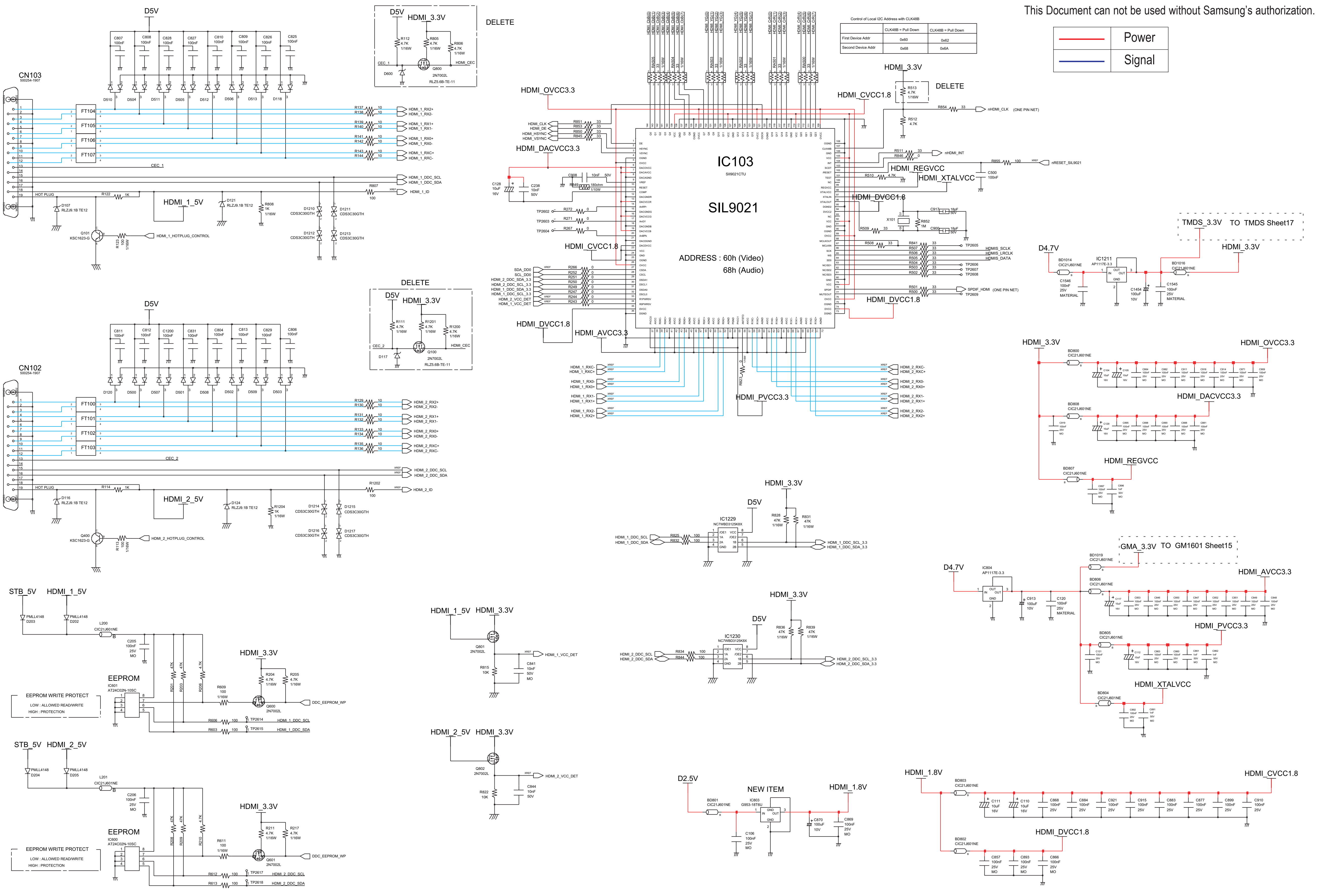
🟥	Power
🟦	Signal


D5V
HDMI_3.3V
DELETE
CN103
CN102
FT104
FT105
FT106
FT107
FT100
FT101
FT102
FT103
HDMI_1_5V
HDMI_2_5V
HDMI_1_HOTPLUG_CONTROL
HDMI_2_HOTPLUG_CONTROL
HOT PLUG
CEC_1
CEC_2
HDMI_CEC
IC103
SIL9021
ADDRESS : 60h (Video)
68h (Audio)
HDMI_OVCC3.3
HDMI_DACVCC3.3
HDMI_CVCC1.8
HDMI_DVCC1.8
HDMI_AVCC3.3
HDMI_PVCC3.3
HDMI_REGVCC
HDMI_XTALVCC
Control of Local I2C Address with CLK48B
CLK48B = Pull Down
CLK48B = Pull Down
First Device Addr
0x60
0x62
Second Device Addr
0x68
0x6A
TMDS_3.3V TO TMDS Sheet17
GMA_3.3V TO GM1601 Sheet15
D4.7V
IC1211
AP1117E-3.3
IC804
AP1117E-3.3
IC1229
IC1230
NEW ITEM
IC803
D2.5V
HDMI_1.8V
EEPROM
IC601
AT24C02N-10SC
IC600
AT24C02N-10SC
EEPROM WRITE PROTECT
LOW : ALLOWED READ/WRITE
HIGH : PROTECTION
STB_5V
HDMI_1_VCC_DET
HDMI_2_VCC_DET
DDC_EEPROM_WP
HDMI_1_DDC_SCL
HDMI_1_DDC_SDA
HDMI_2_DDC_SCL
HDMI_2_DDC_SDA
HDMIS_SCLK
HDMIS_LRCLK
HDMIS_DATA
SPDIF_HDMI (ONE PIN NET)
nHDMI_CLK (ONE PIN NET)
nHDMI_INT
nRESET_SIL9021

10-2-7 Digital-7

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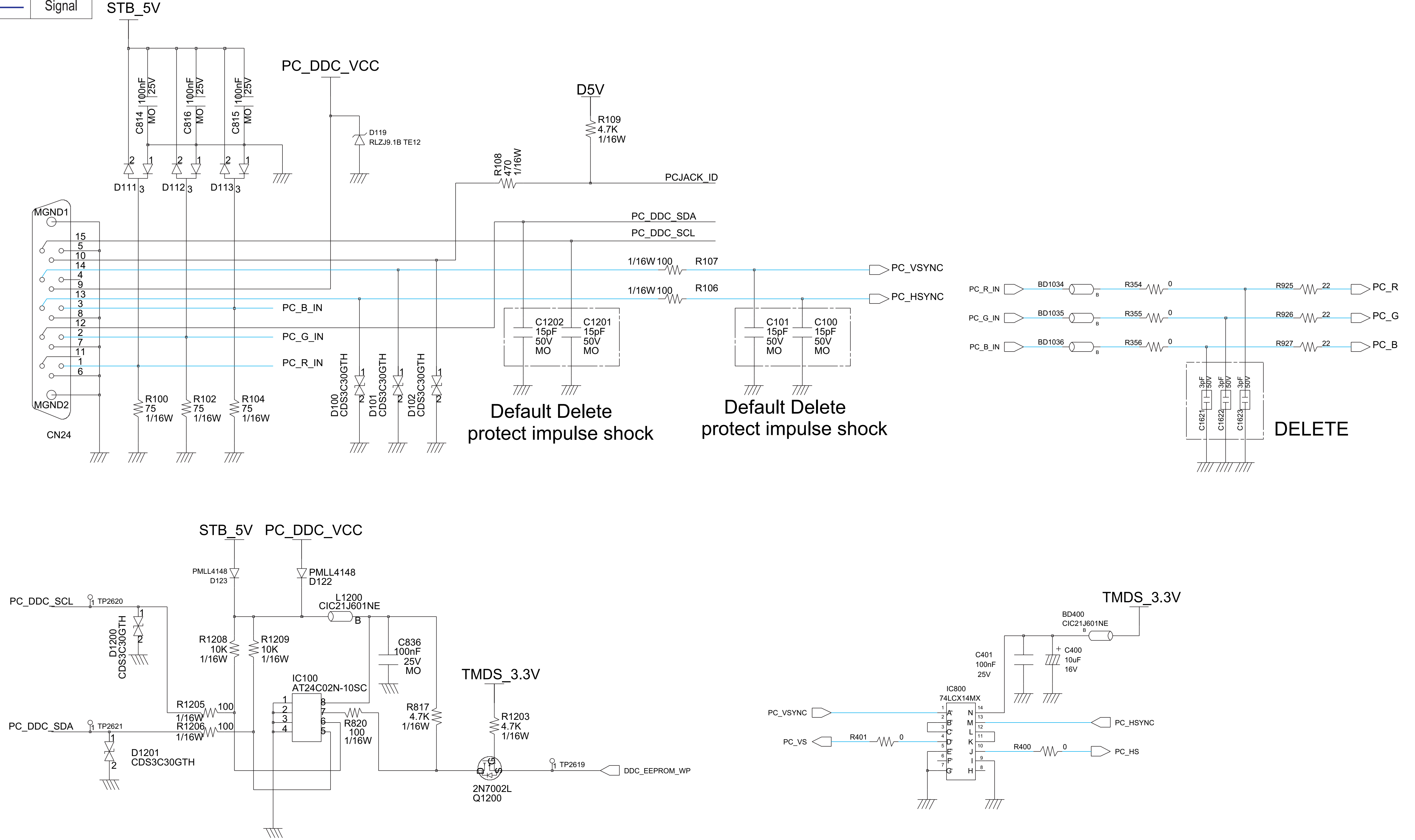
—	Power
—	Signal


STB_5V
C814 100nF 25V MO
C816 100nF 25V MO
C815 100nF 25V MO
PC_DDC_VCC
D119 RLZJ9.1B TE12
D5V
R109 4.7K 1/16W
R108 470 1/16W
PCJACK_ID
D111
D112
D113
MGND1
MGND2
CN24
15
5
10
14
4
9
13
3
8
12
2
7
11
1
6
PC_DDC_SDA
PC_DDC_SCL
1/16W 100 R107
1/16W 100 R106
PC_VSYNC
PC_HSYNC
PC_B_IN
PC_G_IN
PC_R_IN
C1202 15pF 50V MO
C1201 15pF 50V MO
C101 15pF 50V MO
C100 15pF 50V MO
D100 CDS3C30GTH
D101 CDS3C30GTH
D102 CDS3C30GTH
R100 75 1/16W
R102 75 1/16W
R104 75 1/16W
Default Delete protect impulse shock
Default Delete protect impulse shock
PC_R_IN
PC_G_IN
PC_B_IN
BD1034
BD1035
BD1036
R354 0
R355 0
R356 0
R925 22
R926 22
R927 22
PC_R
PC_G
PC_B
C1621 3pF 50V
C1622 3pF 50V
C1623 3pF 50V
DELETE
STB_5V
PC_DDC_VCC
PMLL4148 D123
PMLL4148 D122
L1200 CIC21J601NE
PC_DDC_SCL
TP2620
D1200 CDS3C30GTH
R1208 10K 1/16W
R1209 10K 1/16W
C836 100nF 25V MO
IC100 AT24C02N-10SC
R1205 1/16W 100
R1206 1/16W 100
PC_DDC_SDA
TP2621
D1201 CDS3C30GTH
R820 100 1/16W
R817 4.7K 1/16W
TMDS_3.3V
R1203 4.7K 1/16W
2N7002L Q1200
TP2619
DDC_EEPROM_WP
TMDS_3.3V
BD400 CIC21J601NE
C401 100nF 25V
C400 10uF 16V
IC800 74LCX14MX
PC_VSYNC
PC_VS
R401 0
PC_HSYNC
R400 0
PC_HS

10-2-8 Digital-8

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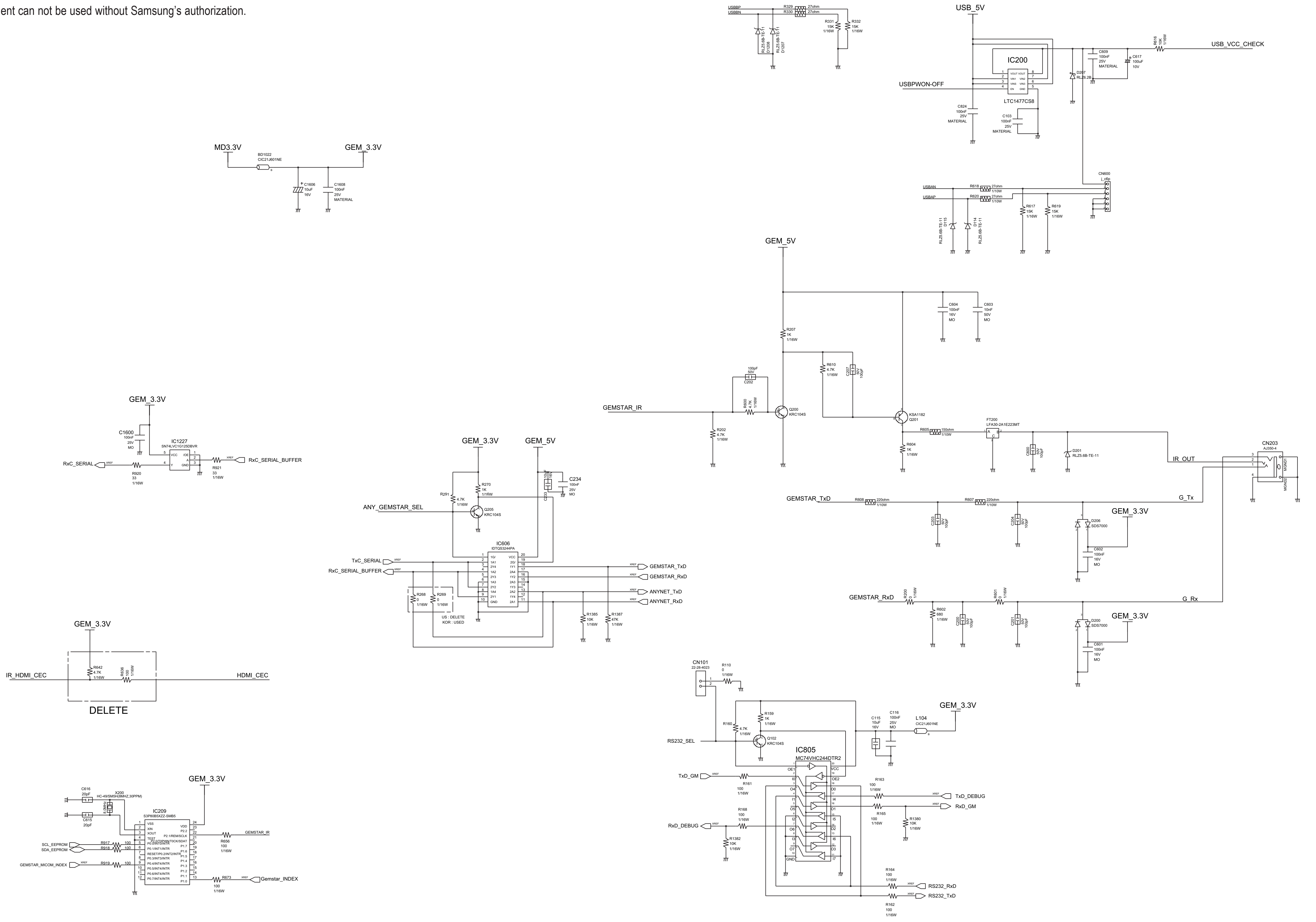
USBBP
USBBN
R329 27ohm
R330 27ohm
R331 15K 1/16W
R332 15K 1/16W
USB_5V
IC200
LTC1477CS8
USBPWON-OFF
C824 100nF 25V MATERIAL
C103 100nF 25V MATERIAL
C609 100nF 25V MATERIAL
C617 100uF 10V
D207 RLZ6.2B
USB_VCC_CHECK
CN600
USBAN
USBAP
R618 27ohm 1/10W
R620 27ohm 1/10W
R617 15K 1/16W
R619 15K 1/16W
D115
D114
MD3.3V
GEM_3.3V
BD1022 CIC21J601NE
C1606 10uF 16V
C1608 100nF 25V MATERIAL
GEM_5V
C604 100nF 16V MO
C603 10nF 50V MO
R207 1K 1/16W
R610 4.7K 1/16W
C202 100pF 50V
GEMSTAR_IR
R600 4.7K 1/16W
Q200 KRC104S
R202 4.7K 1/16W
KSA1182 Q201
R605 150ohm 1/10W
FT200 LFA30-2A1E223MT
R604 1K 1/16W
D201 RLZ5.6B-TE-11
IR_OUT
CN203 AJ350-4
GEMSTAR_TxD
R608 220ohm 1/10W
R607 220ohm 1/10W
G_Tx
D206 SDS7000
C602 100nF 16V MO
GEMSTAR_RxD
R200 0 1/16W
R601 0 1/16W
R602 680 1/16W
G_Rx
D200 SDS7000
C601 100nF 16V MO
GEM_3.3V
C1600 100nF 25V MO
IC1227 SN74LVC1G125DBVR
RxC_SERIAL
R920 33 1/16W
R921 33 1/16W
RxC_SERIAL_BUFFER
GEM_3.3V
GEM_5V
C234 100nF 25V MO
R270 1K 1/16W
R291 4.7K 1/16W
ANY_GEMSTAR_SEL
Q205 KRC104S
IC606 IDTQS3244PA
TxC_SERIAL
RxC_SERIAL_BUFFER
R268 0 1/16W
R269 0 1/16W
US : DELETE
KOR : USED
GEMSTAR_TxD
GEMSTAR_RxD
ANYNET_TxD
ANYNET_RxD
R1385 10K 1/16W
R1387 47K 1/16W
GEM_3.3V
IR_HDMI_CEC
R642 4.7K 1/16W
R636 100 1/16W
HDMI_CEC
DELETE
CN101 22-28-4023
R110 0 1/16W
R159 1K 1/16W
R160 4.7K 1/16W
RS232_SEL
Q102 KRC104S
C115 10uF 16V
C116 100nF 25V MO
L104 CIC21J601NE
GEM_3.3V
IC805
MC74VHC244DTR2
TxD_GM
R161 100 1/16W
R163 100 1/16W
TxD_DEBUG
RxD_GM
R165 100 1/16W
R1380 10K 1/16W
R168 100 1/16W
RxD_DEBUG
R1382 10K 1/16W
R164 100 1/16W
RS232_RxD
RS232_TxD
R162 100 1/16W
GEM_3.3V
C616 20pF
X200 HC-49/SMSH(8MHZ,30PPM)
C615 20pF
IC209
S3P8085XZZ-SMB5
SCL_EEPROM
SDA_EEPROM
R917 100
R918 100
GEMSTAR_MICOM_INDEX
R919 100
R656 100 1/16W
GEMSTAR_IR
R673 100 1/16W
Gemstar_INDEX

10-2-9 Digital-9

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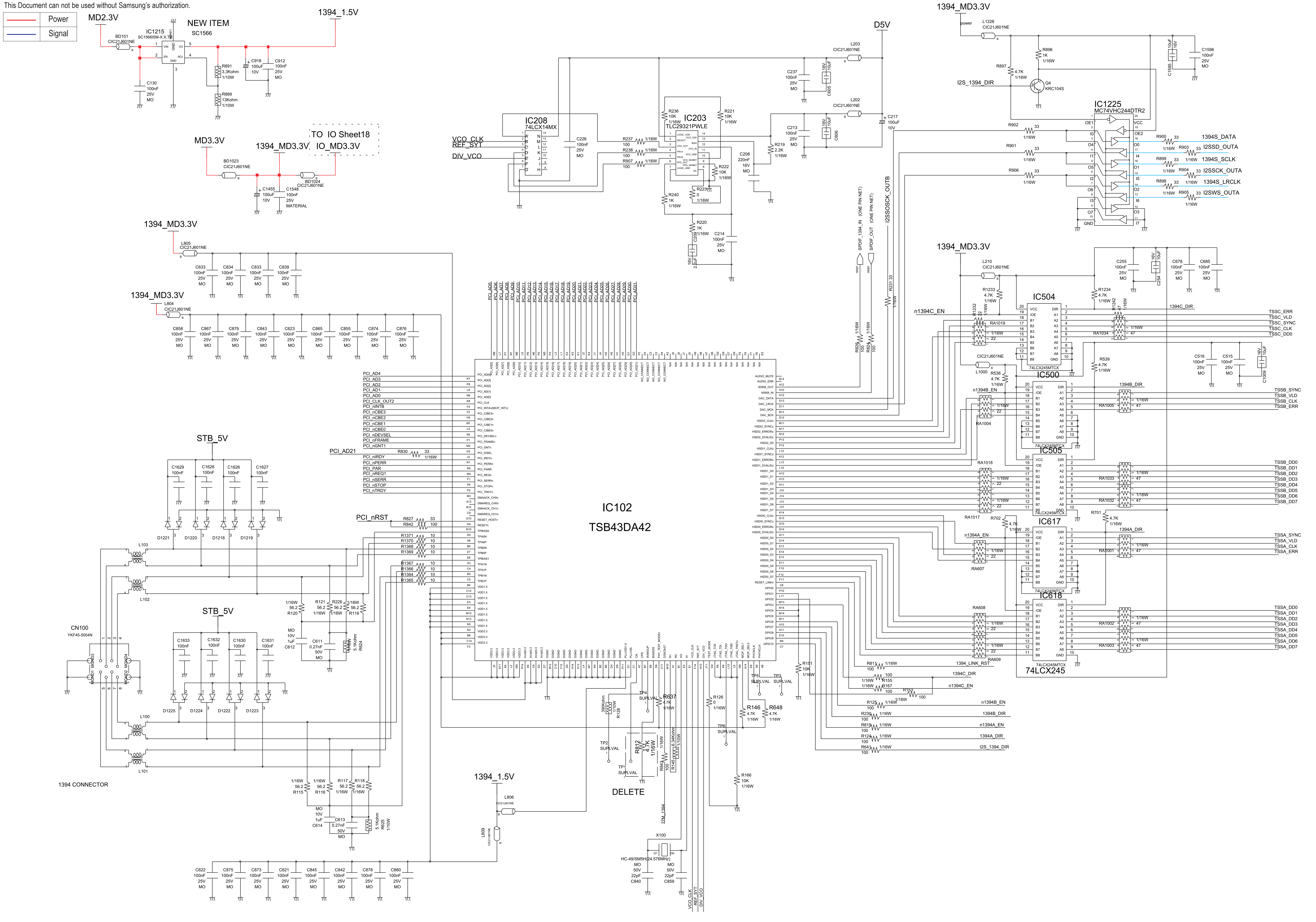
Power
Signal
MD2.3V
IC1215
NEW ITEM
SC1566
1394_1.5V
MD3.3V
1394_MD3.3V
TO IO Sheet18
IO_MD3.3V
D5V
IC208
74LCX14MX
IC203
TLC29321PWLE
VCO_CLK
REF_SYT
DIV_VCO
IC1225
MC74VHC244DTR2
I2S_1394_DIR
1394S_DATA
I2SSD_OUTA
1394S_SCLK
I2SSCK_OUTA
1394S_LRCLK
I2SWS_OUTA
IC504
IC500
IC505
IC617
IC618
74LCX245
n1394C_EN
1394C_DIR
TSSC_ERR
TSSC_VLD
TSSC_SYNC
TSSC_CLK
TSSC_DD0
TSSB_SYNC
TSSB_VLD
TSSB_CLK
TSSB_ERR
TSSB_DD0
TSSB_DD1
TSSB_DD2
TSSB_DD3
TSSB_DD4
TSSB_DD5
TSSB_DD6
TSSB_DD7
TSSA_SYNC
TSSA_VLD
TSSA_CLK
TSSA_ERR
TSSA_DD0
TSSA_DD1
TSSA_DD2
TSSA_DD3
TSSA_DD4
TSSA_DD5
TSSA_DD6
TSSA_DD7
IC102
TSB43DA42
STB_5V
PCI_AD21
PCI_nRST
CN100
YKF45-5004N
1394 CONNECTOR
DELETE
X100
1394_LINK_RST
n1394B_EN
1394B_DIR
n1394A_EN
1394A_DIR
I2S_1394_DIR
SPDIF_1394_IN (ONE PIN NET)
SPDIF_OUT (ONE PIN NET)
I2SSOSCK_OUTB

10-2-10 Digital-10

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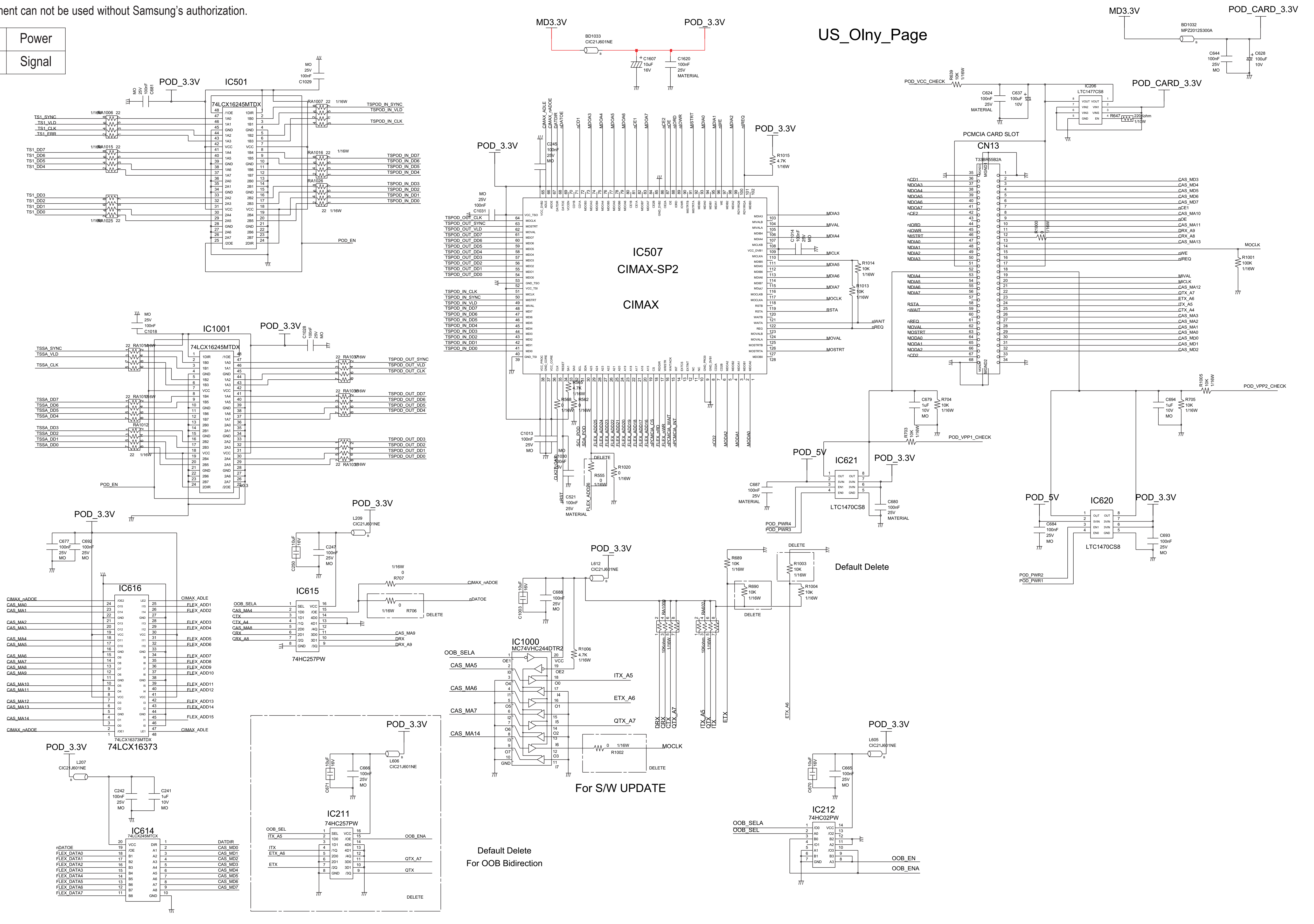
—	Power
—	Signal


US_Olny_Page
MD3.3V
POD_3.3V
POD_CARD_3.3V
POD_5V
IC501
74LCX16245MTDX
IC1001
74LCX16245MTDX
IC507
CIMAX-SP2
CIMAX
CN13
PCMCIA CARD SLOT
IC206
LTC1477CS8
IC621
LTC1470CS8
IC620
LTC1470CS8
IC616
74LCX16373
74LCX16373MTDX
IC614
74LCX245MTCX
IC615
74HC257PW
IC211
74HC257PW
IC1000
MC74VHC244DTR2
IC212
74HC02PW
TS1_SYNC
TS1_VLD
TS1_CLK
TS1_ERR
TS1_DD7
TS1_DD6
TS1_DD5
TS1_DD4
TS1_DD3
TS1_DD2
TS1_DD1
TS1_DD0
TSPOD_IN_SYNC
TSPOD_IN_VLD
TSPOD_IN_CLK
TSPOD_IN_DD7
TSPOD_IN_DD6
TSPOD_IN_DD5
TSPOD_IN_DD4
TSPOD_IN_DD3
TSPOD_IN_DD2
TSPOD_IN_DD1
TSPOD_IN_DD0
TSSA_SYNC
TSSA_VLD
TSSA_CLK
TSSA_DD7
TSSA_DD6
TSSA_DD5
TSSA_DD4
TSSA_DD3
TSSA_DD2
TSSA_DD1
TSSA_DD0
TSPOD_OUT_SYNC
TSPOD_OUT_VLD
TSPOD_OUT_CLK
TSPOD_OUT_DD7
TSPOD_OUT_DD6
TSPOD_OUT_DD5
TSPOD_OUT_DD4
TSPOD_OUT_DD3
TSPOD_OUT_DD2
TSPOD_OUT_DD1
TSPOD_OUT_DD0
POD_EN
POD_VCC_CHECK
POD_VPP1_CHECK
POD_VPP2_CHECK
POD_PWR1
POD_PWR2
POD_PWR3
POD_PWR4
MOCLK
Default Delete
For S/W UPDATE
Default Delete
For OOB Bidirection
DELETE
OOB_SELA
OOB_SEL
OOB_EN
OOB_ENA
CAS_MA5
CAS_MA6
CAS_MA7
CAS_MA14
ITX_A5
ETX_A6
QTX_A7
CIMAX_nADOE
CIMAX_ADLE
nDATOE
CAS_MA9
DRX
DRX_A9
nDATOE
FLEX_DATA0
FLEX_DATA1
FLEX_DATA2
FLEX_DATA3
FLEX_DATA4
FLEX_DATA5
FLEX_DATA6
FLEX_DATA7
DATDIR
CAS_MD0
CAS_MD1
CAS_MD2
CAS_MD3
CAS_MD4
CAS_MD5
CAS_MD6
CAS_MD7
BD1033
CIC21J601NE
BD1032
MPZ2012S300A
R1015
4.7K
1/16W
R1014
10K
R1013
R1001
100K
R1003
R1004
R689
R690
R1006
R1002
L612
L209
L207
L605
L606
C1607
C1620
C644
C628

10-2-11 Digital-11

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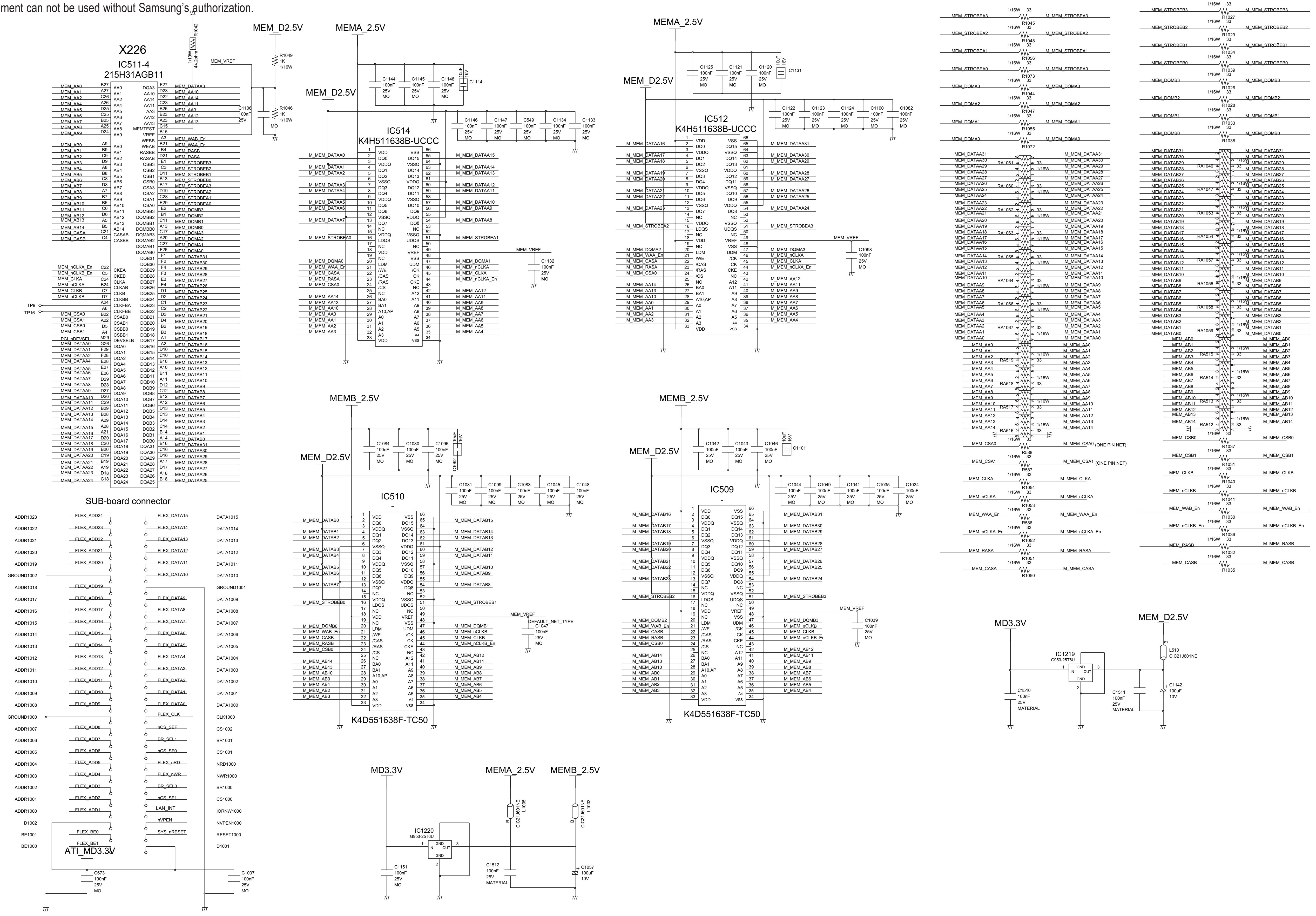
X226
IC511-4
215H31AGB11
MEM_D2.5V
MEMA_2.5V
IC514
K4H511638B-UCCC
IC512
K4H511638B-UCCC
MEMB_2.5V
IC510
K4D551638F-TC50
IC509
K4D551638F-TC50
SUB-board connector
ATI_MD3.3V
MD3.3V
IC1220
G953-25T6U
IC1219
G953-25T6U
L510
CIC21J601NE
MEM_VREF
R1042
R1049
R1046
TP9
TP16
C673
C1037
C1151
C1512
C1057
C1510
C1511
C1142

10-2-12 Digital-12

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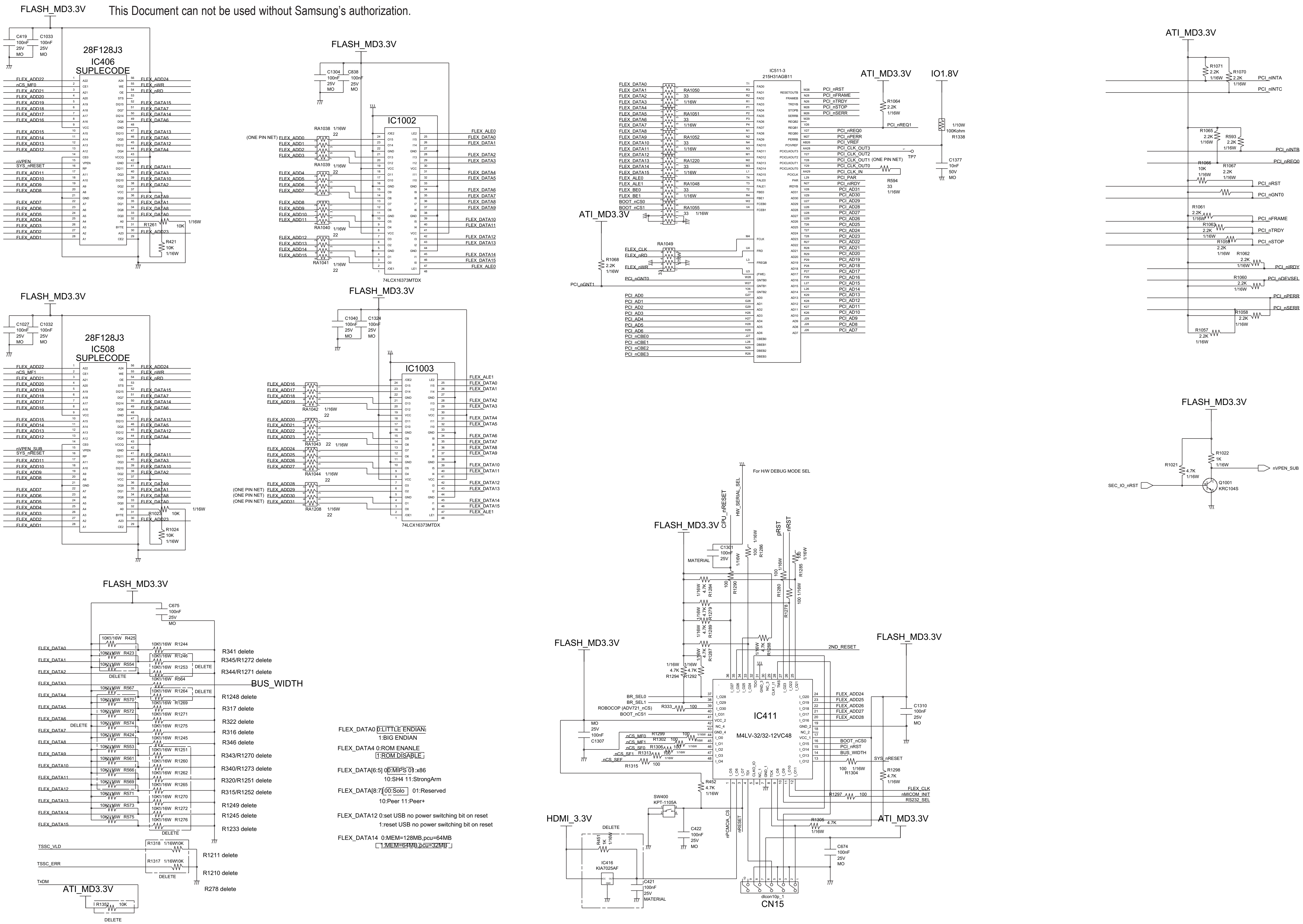
FLASH_MD3.3V
28F128J3
IC406
SUPLECODE
IC508
IC1002
IC1003
74LCX16373MTDX
IC511-3
215H31AGB11
ATI_MD3.3V
IO1.8V
IC411
M4LV-32/32-12VC48
BUS_WIDTH
HDMI_3.3V
IC416
KIA7025AF
SW400
KPT-1105A
CN15
dlcon10p_1
Q1001
KRC104S
For H/W DEBUG MODE SEL
FLEX_DATA0 0:LITTLE ENDIAN
1:BIG ENDIAN
FLEX_DATA4 0:ROM ENANLE
1:ROM DISABLE
FLEX_DATA[6:5] 00:MIPS 01:x86
10:SH4 11:StrongArm
FLEX_DATA[8:7] 00:Solo 01:Reserved
10:Peer 11:Peer+
FLEX_DATA12 0:set USB no power switching bit on reset
1:reset USB no power switching bit on reset
FLEX_DATA14 0:MEM=128MB,pcu=64MB
1:MEM=64MB,pcu=32MB
R341 delete
R345/R1272 delete
R344/R1271 delete
R1248 delete
R317 delete
R322 delete
R316 delete
R346 delete
R343/R1270 delete
R340/R1273 delete
R320/R1251 delete
R315/R1252 delete
R1249 delete
R1245 delete
R1233 delete
R1211 delete
R1210 delete
R278 delete

10-2-13 Digital-13

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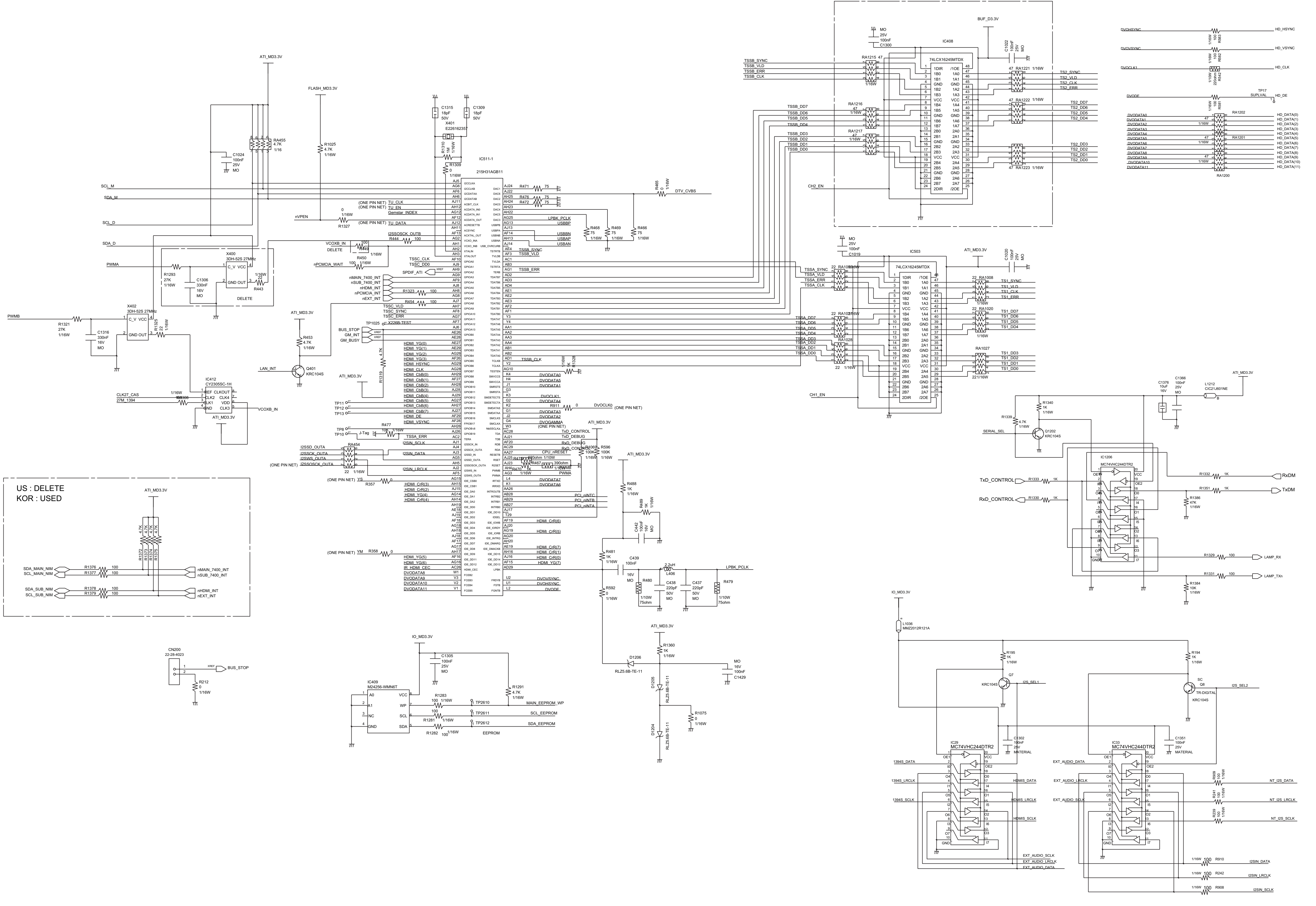
KOR : USED
US : DELETE
US : DELETE
KOR : USED
IC511-1
215H31AGB11
IC408
74LCX16245MTDX
IC503
74LCX16245MTDX
IC412
CY2305SC-1H
X400
3DH-52S 27MHz
X402
3DH-52S 27MHz
X401
IC409
M24256-WMN6T
IC1206
MC74VHC244DTR2
IC29
MC74VHC244DTR2
IC33
MC74VHC244DTR2
CN200
22-28-4023
ATI_MD3.3V
FLASH_MD3.3V
IO_MD3.3V
BUF_D3.3V
SCL_M
SDA_M
SCL_D
SDA_D
PWMA
PWMB
CLK27_CAS
27M_1394
VCOXB_IN
LAN_INT
BUS_STOP
GM_INT
GM_BUSY
SDA_MAIN_NIM
SCL_MAIN_NIM
SDA_SUB_NIM
SCL_SUB_NIM
nMAIN_7400_INT
nSUB_7400_INT
nHDMI_INT
nEXT_INT
nPCMCIA_WAIT
TU_CLK
TU_EN
Gemstar_INDEX
TU_DATA
nVPEN
SPDIF_ATI
DTV_CVBS
LPBK_PCLK
USBBP
USBBN
USBAP
USBAN
TSSB_SYNC
TSSB_VLD
TSSB_ERR
TSSB_CLK
TSSB_DD0
TSSB_DD1
TSSB_DD2
TSSB_DD3
TSSB_DD4
TSSB_DD5
TSSB_DD6
TSSB_DD7
TSSA_SYNC
TSSA_VLD
TSSA_ERR
TSSA_CLK
TSSA_DD0
TSSA_DD1
TSSA_DD2
TSSA_DD3
TSSA_DD4
TSSA_DD5
TSSA_DD6
TSSA_DD7
TS1_SYNC
TS1_VLD
TS1_CLK
TS1_ERR
TS1_DD0
TS1_DD1
TS1_DD2
TS1_DD3
TS1_DD4
TS1_DD5
TS1_DD6
TS1_DD7
TS2_SYNC
TS2_VLD
TS2_CLK
TS2_ERR
TS2_DD0
TS2_DD1
TS2_DD2
TS2_DD3
TS2_DD4
TS2_DD5
TS2_DD6
TS2_DD7
CH1_EN
CH2_EN
DVOHSYNC
DVOVSYNC
DVOCLK1
DVODE
HD_HSYNC
HD_VSYNC
HD_CLK
HD_DE
HD_DATA(0)
HD_DATA(1)
HD_DATA(2)
HD_DATA(3)
HD_DATA(4)
HD_DATA(5)
HD_DATA(6)
HD_DATA(7)
HD_DATA(8)
HD_DATA(9)
HD_DATA(10)
HD_DATA(11)
HDMI_YG(0)
HDMI_YG(1)
HDMI_YG(2)
HDMI_YG(3)
HDMI_HSYNC
HDMI_CLK
HDMI_CbB(0)
HDMI_CbB(1)
HDMI_CbB(2)
HDMI_CbB(3)
HDMI_CbB(4)
HDMI_CbB(5)
HDMI_CbB(6)
HDMI_CbB(7)
HDMI_DE
HDMI_VSYNC
HDMI_CrR(3)
HDMI_CrR(2)
HDMI_YG(4)
HDMI_CrR(4)
HDMI_YG(5)
HDMI_YG(6)
HDMI_CrR(5)
HDMI_CrR(6)
HDMI_CrR(7)
HDMI_CrR(0)
HDMI_YG(7)
IR_HDMI_CEC
I2SSD_OUTA
I2SSCK_OUTA
I2SWS_OUTA
I2SSOSCK_OUTA
I2SIN_SCLK
I2SIN_DATA
I2SIN_LRCLK
I2SSOSCK_OUTB
TxD_CONTROL
TxD_DEBUG
RxD_DEBUG
RxD_CONTROL
CPU_nRESET
PCI_nINTC
PCI_nINTB
PCI_nINTA
RxDM
TxDM
LAMP_RX
LAMP_TXn
SERIAL_SEL
I2S_SEL1
I2S_SEL2
1394S_DATA
1394S_LRCLK
1394S_SCLK
HDMIS_DATA
HDMIS_LRCLK
HDMIS_SCLK
EXT_AUDIO_DATA
EXT_AUDIO_LRCLK
EXT_AUDIO_SCLK
NT_I2S_DATA
NT_I2S_LRCLK
NT_I2S_SCLK
MAIN_EEPROM_WP
SCL_EEPROM
SDA_EEPROM
EEPROM
(ONE PIN NET)
DELETE

10-2-14 Digital-14

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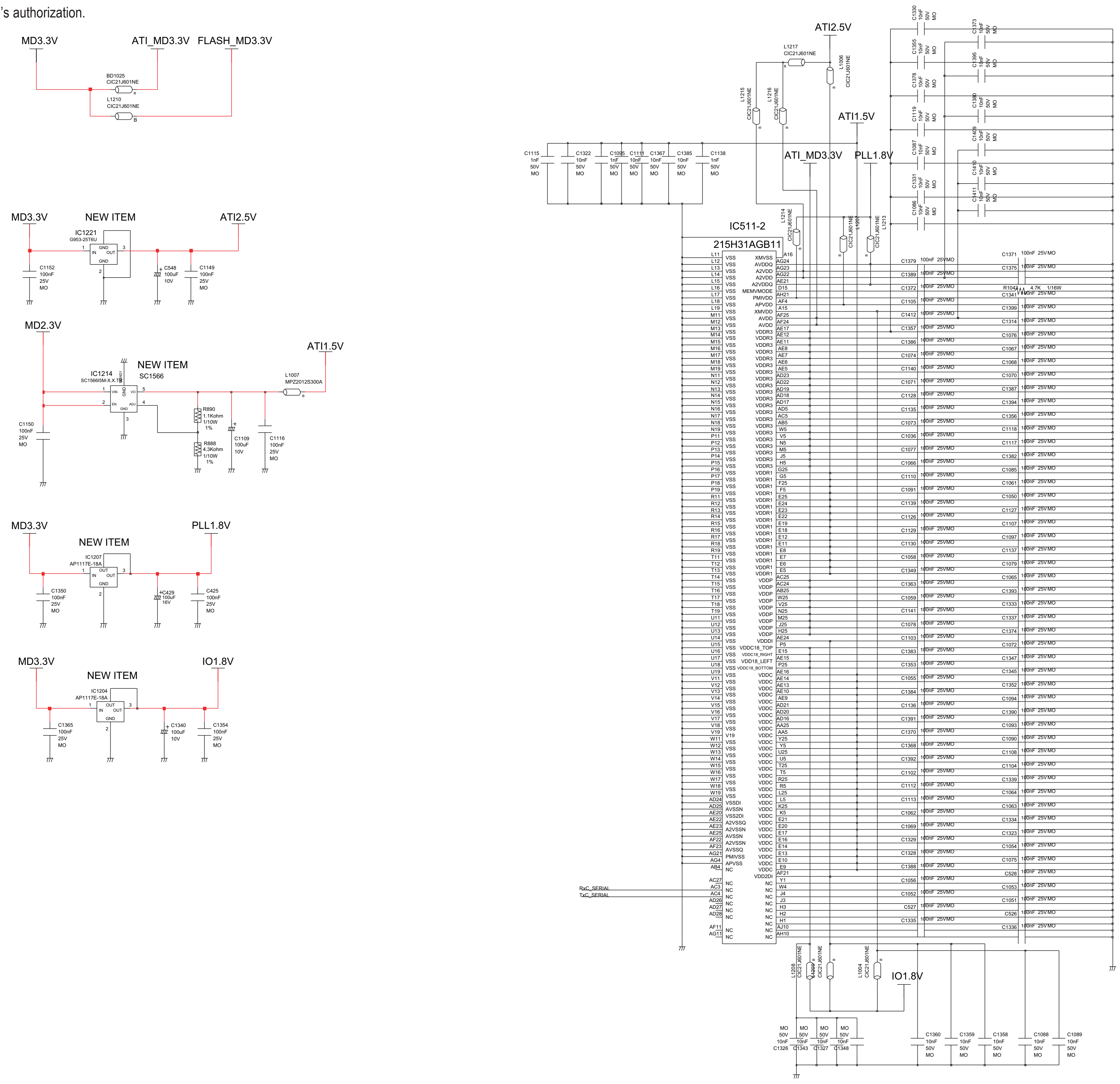
─	Power
─	Signal


MD3.3V
ATI_MD3.3V
FLASH_MD3.3V
BD1025
CIC21J601NE
L1210
CIC21J601NE
MD3.3V
NEW ITEM
ATI2.5V
IC1221
G953-25T6U
IN
OUT
GND
C1152
100nF
25V
MO
C548
100uF
10V
C1149
100nF
25V
MO
MD2.3V
ATI1.5V
NEW ITEM
IC1214
SC1566IM-X.X.TR
SC1566
VIN
VO
EN
ADJ
GND
L1007
MPZ2012S300A
C1150
100nF
25V
MO
R890
1.1Kohm
1/10W
1%
R888
4.3Kohm
1/10W
1%
C1109
100uF
10V
C1116
100nF
25V
MO
MD3.3V
PLL1.8V
NEW ITEM
IC1207
AP1117E-18A
C1350
100nF
25V
MO
C429
100uF
16V
C425
100nF
25V
MO
MD3.3V
IO1.8V
NEW ITEM
IC1204
AP1117E-18A
C1365
100nF
25V
MO
C1340
100uF
10V
C1354
100nF
25V
MO
ATI2.5V
L1217
CIC21J601NE
L1006
CIC21J601NE
L1215
CIC21J601NE
L1216
CIC21J601NE
ATI1.5V
ATI_MD3.3V
PLL1.8V
C1115
C1322
C1095
C1119
C1367
C1385
C1138
IC511-2
215H31AGB11
L1214
CIC21J601NE
L1213
CIC21J601NE
VSS
XMVSS
AVDDQ
A2VDD
A2VDDQ
MEMVMODE
PMVDD
APVDD
XMVDD
AVDD
VDDR3
VDDR1
VDDP
VDDDI
VDDC18_TOP
VDDC18_RIGHT
VDD18_LEFT
VDDC18_BOTTOM
VDDC
VSSDI
AVSSN
VSS2DI
A2VSSQ
A2VSSN
AVSSQ
PMIVSS
APVSS
VDD2DI
NC
RxC_SERIAL
TxC_SERIAL
R1048
4.7K
1/16W
100nF 25VMO
L1208
CIC21J601NE
L1004
CIC21J601NE
IO1.8V
C1326
C1343
C1327
C1348
C1360
C1359
C1358
C1088
C1089
10nF
50V
MO

10-2-15 Digital-15

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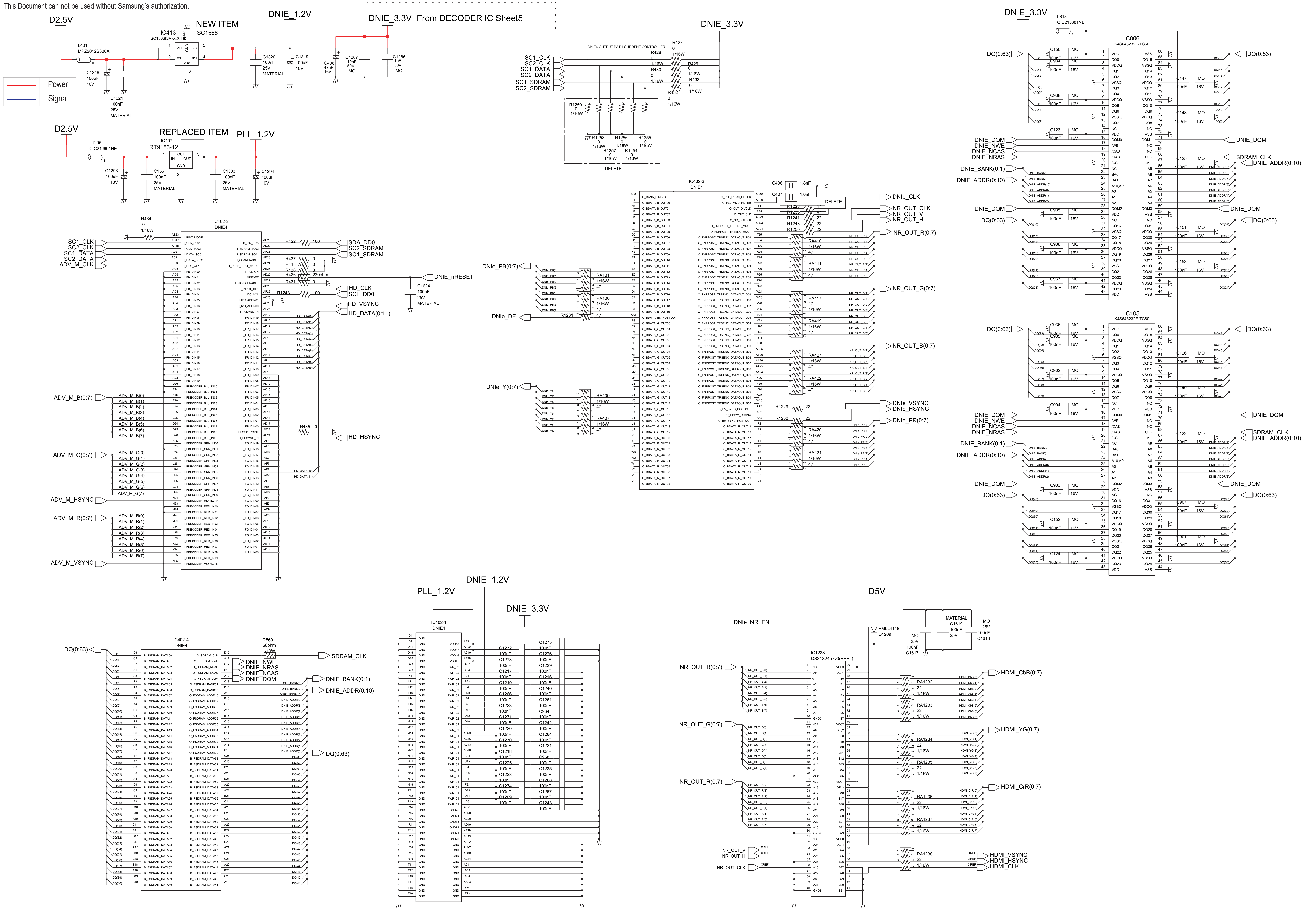
D2.5V
NEW ITEM
IC413 SC1566
DNIE_1.2V
DNIE_3.3V From DECODER IC Sheet5
DNIE_3.3V
Power
Signal
REPLACED ITEM
IC407 RT9183-12
PLL_1.2V
DNIE4 OUTPUT PATH CURRENT CONTROLLER
DELETE
SC1_CLK
SC2_CLK
SC1_DATA
SC2_DATA
SC1_SDRAM
SC2_SDRAM
IC402-2 DNIE4
IC402-3 DNIE4
ADV_M_CLK
SDA_DD0
SC2_SDRAM
SC1_SDRAM
DNIE_nRESET
HD_CLK
SCL_DD0
HD_VSYNC
HD_DATA(0:11)
HD_HSYNC
ADV_M_B(0:7)
ADV_M_G(0:7)
ADV_M_HSYNC
ADV_M_R(0:7)
ADV_M_VSYNC
DNIe_PB(0:7)
DNIe_DE
DNIe_Y(0:7)
DNIe_CLK
NR_OUT_CLK
NR_OUT_V
NR_OUT_H
NR_OUT_R(0:7)
NR_OUT_G(0:7)
NR_OUT_B(0:7)
DNIe_VSYNC
DNIe_HSYNC
DNIe_PR(0:7)
IC806 K4S643232E-TC60
IC105 K4S643232E-TC60
DQ(0:63)
DNIE_DQM
DNIE_NWE
DNIE_NCAS
DNIE_NRAS
DNIE_BANK(0:1)
DNIE_ADDR(0:10)
SDRAM_CLK
IC402-4 DNIE4
IC402-1 DNIE4
R860 68ohm
DNIE_NWE
DNIE_NRAS
DNIE_NCAS
DNIE_DQM
D5V
DNIe_NR_EN
PMLL4148 D1209
IC1228 QS34X245-Q3(REEL)
HDMI_CbB(0:7)
HDMI_YG(0:7)
HDMI_CrR(0:7)
HDMI_VSYNC
HDMI_HSYNC
HDMI_CLK

10-2-16 Digital-16

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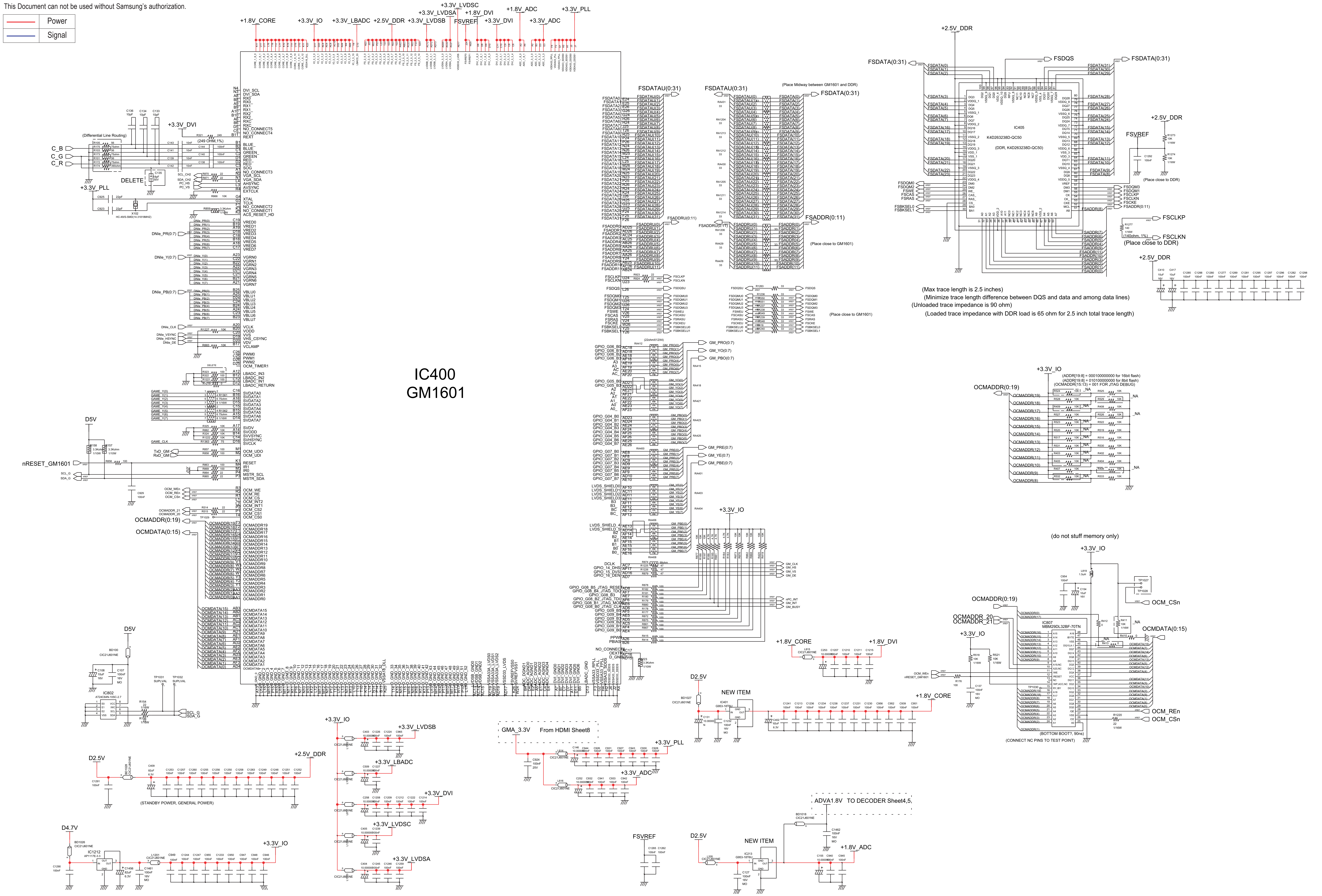
🟥	Power
🟦	Signal


IC400
GM1601
+1.8V_CORE
+3.3V_IO
+3.3V_LBADC
+2.5V_DDR
+3.3V_LVDSB
+3.3V_LVDSA
+3.3V_LVDSC
FSVREF
+1.8V_DVI
+3.3V_DVI
+1.8V_ADC
+3.3V_ADC
+3.3V_PLL
C_B
C_G
C_R
(Differential Line Routing)
DELETE
(249 OHM,1%)
DNIe_PR(0:7)
DNIe_Y(0:7)
DNIe_PB(0:7)
D5V
nRESET_GM1601
OCMADDR(0:19)
OCMDATA(0:15)
IC802
FSDATAU(0:31)
FSDATA(0:31)
FSADDRU(0:11)
FSADDR(0:11)
(Place Midway between GM1601 and DDR)
(Place close to GM1601)
GM_PRO(0:7)
GM_YO(0:7)
GM_PBO(0:7)
GM_PRE(0:7)
GM_YE(0:7)
GM_PBE(0:7)
IC405
K4D263238D-QC50
(DDR, K4D263238D-QC50)
FSDQS
FSCLKP
FSCLKN
(140ohm, 1%)
(Place close to DDR)
(Max trace length is 2.5 inches)
(Minimize trace length difference between DQS and data and among data lines)
(Unloaded trace impedance is 90 ohm)
(Loaded trace impedance with DDR load is 65 ohm for 2.5 inch total trace length)
(ADDR[19:8] = 000100000000 for 16bit flash)
(ADDR[19:8] = 010100000000 for 8bit flash)
(OCMADDR[15:13] = 001 FOR JTAG DEBUG)
(do not stuff memory only)
IC807
M29DL32BF-70TN
OCMADDR_20
OCMADDR_21
OCM_CSn
OCM_REn
(BOTTOM BOOT?, 90ns)
(CONNECT NC PINS TO TEST POINT)
D2.5V
NEW ITEM
IC401
(STANDBY POWER, GENERAL POWER)
GMA_3.3V From HDMI Sheet8
D4.7V
IC1212
ADVA1.8V TO DECODER Sheet4,5.
IC213

10-2-17 Digital-17

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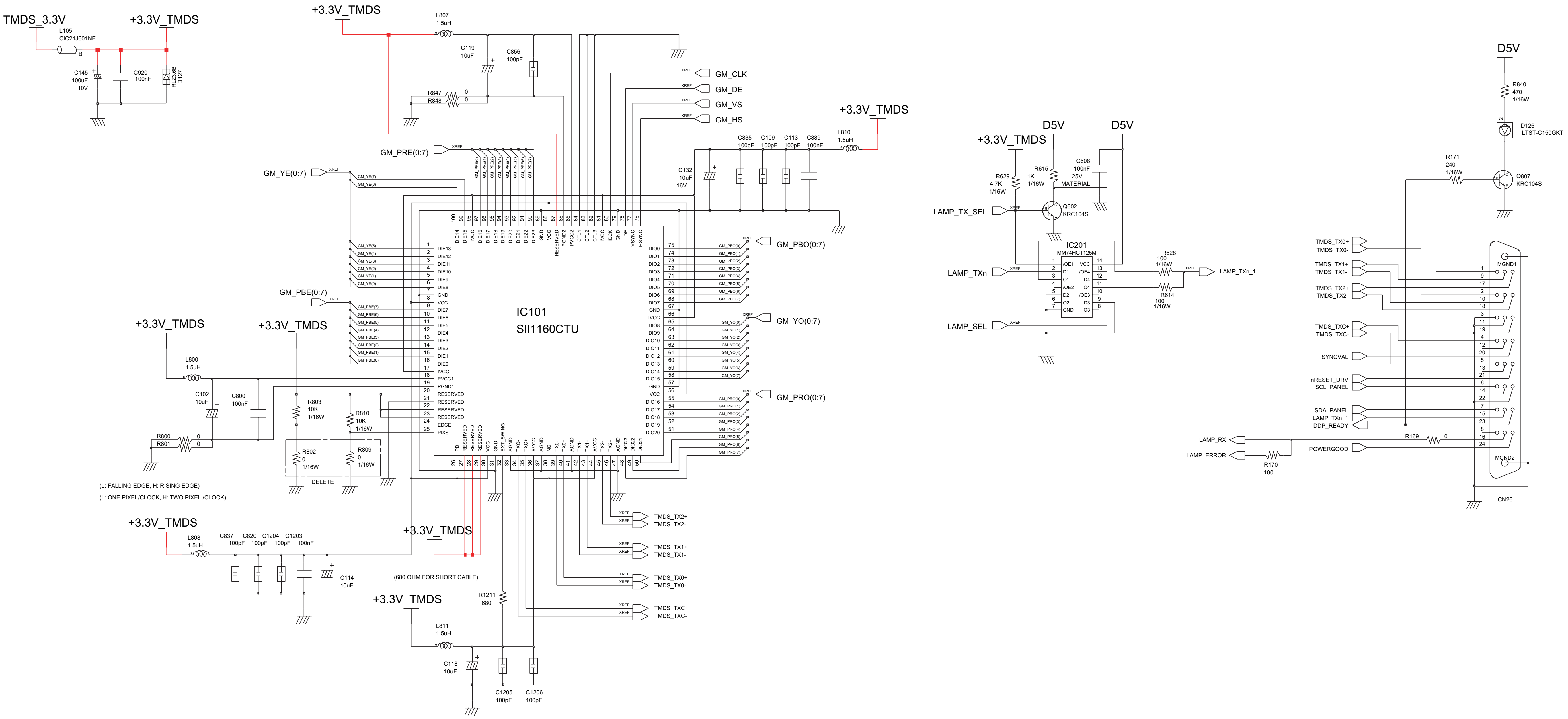
━	Power
━	Signal


TMDS_3.3V
+3.3V_TMDS
L105
CIC21J601NE
C145
100uF
10V
C920
100nF
RLZ3.6B
D127
L807
1.5uH
C119
10uF
C856
100pF
R847
R848
0
GM_CLK
GM_DE
GM_VS
GM_HS
GM_PRE(0:7)
GM_YE(0:7)
GM_PBE(0:7)
C835
100pF
C109
100pF
C113
100pF
C889
100nF
L810
1.5uH
C132
10uF
16V
GM_PBO(0:7)
GM_YO(0:7)
GM_PRO(0:7)
IC101
SII1160CTU
L800
1.5uH
C102
10uF
C800
100nF
R803
10K
1/16W
R810
10K
1/16W
R800
R801
R802
0
1/16W
R809
0
1/16W
DELETE
(L: FALLING EDGE, H: RISING EDGE)
(L: ONE PIXEL/CLOCK, H: TWO PIXEL /CLOCK)
L808
1.5uH
C837
100pF
C820
100pF
C1204
100pF
C1203
100nF
C114
10uF
(680 OHM FOR SHORT CABLE)
R1211
680
L811
1.5uH
C118
10uF
C1205
100pF
C1206
100pF
TMDS_TX2+
TMDS_TX2-
TMDS_TX1+
TMDS_TX1-
TMDS_TX0+
TMDS_TX0-
TMDS_TXC+
TMDS_TXC-
XREF
D5V
R629
4.7K
1/16W
R615
1K
1/16W
C608
100nF
25V
MATERIAL
LAMP_TX_SEL
Q602
KRC104S
IC201
MM74HCT125M
LAMP_TXn
LAMP_SEL
R628
100
1/16W
R614
100
1/16W
LAMP_TXn_1
R840
470
1/16W
D126
LTST-C150GKT
R171
240
1/16W
Q807
KRC104S
SYNCVAL
nRESET_DRV
SCL_PANEL
SDA_PANEL
LAMP_TXn_1
DDP_READY
POWERGOOD
LAMP_RX
LAMP_ERROR
R170
100
R169
MGND1
MGND2
CN26

10-2-18 Digital-18

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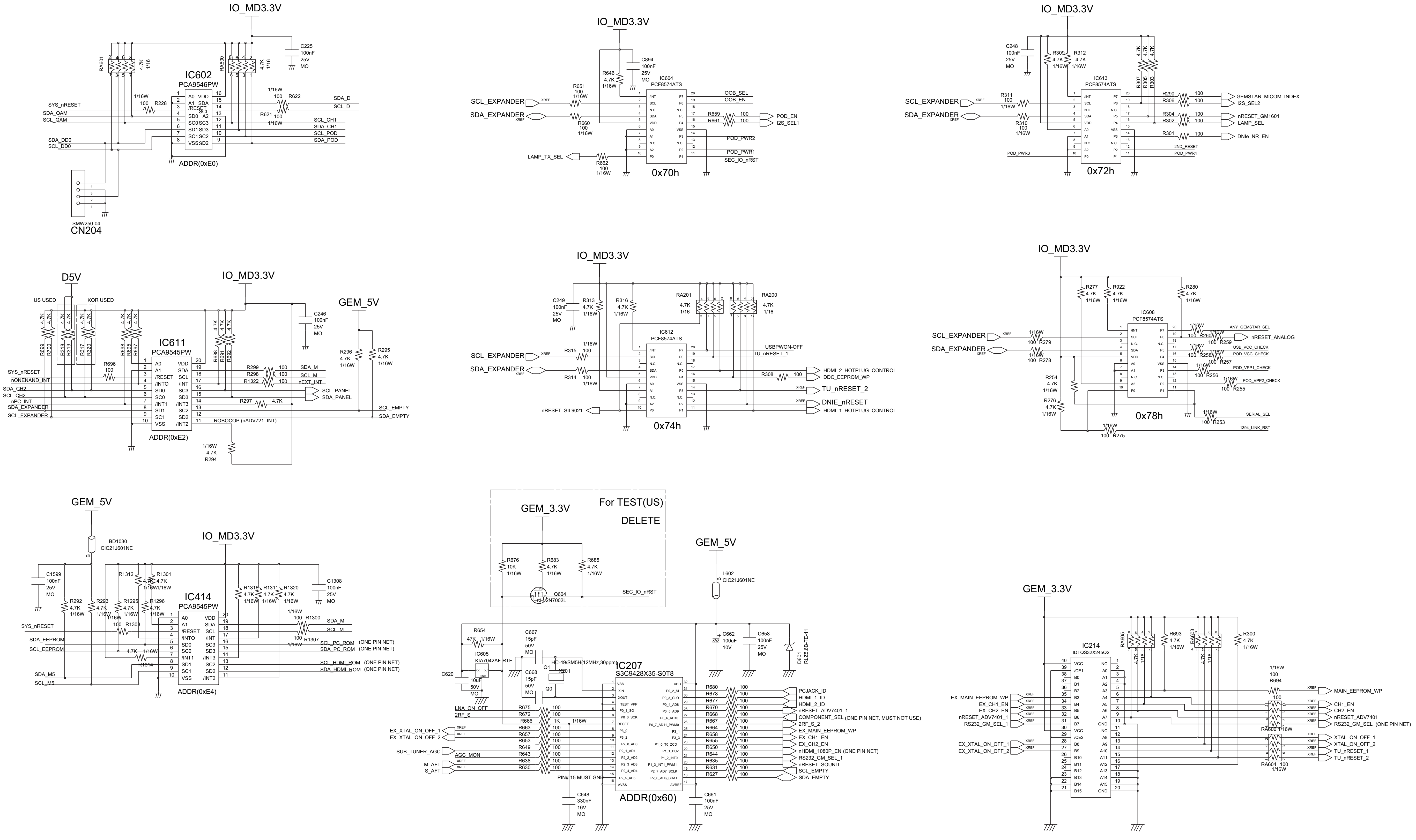
IO_MD3.3V
IC602
PCA9546PW
ADDR(0xE0)
RA601
RA600
C225
100nF
25V
MO
R228
R622
R621
SYS_nRESET
SDA_QAM
SCL_QAM
SDA_DD0
SCL_DD0
SDA_D
SCL_D
SCL_CH1
SDA_CH1
SCL_POD
SDA_POD
SMW250-04
CN204
IC604
PCF8574ATS
0x70h
C894
R646
R651
R660
R659
R661
R662
SCL_EXPANDER
SDA_EXPANDER
OOB_SEL
OOB_EN
POD_EN
I2S_SEL1
POD_PWR2
POD_PWR1
SEC_IO_nRST
LAMP_TX_SEL
IC613
PCF8574ATS
0x72h
C248
R309
R312
R311
R310
R290
R306
R304
R302
R301
GEMSTAR_MICOM_INDEX
I2S_SEL2
nRESET_GM1601
LAMP_SEL
DNIe_NR_EN
2ND_RESET
POD_PWR3
POD_PWR4
D5V
US USED
KOR USED
IC611
PCA9545PW
ADDR(0xE2)
C246
R696
R299
R298
R1322
R297
R294
SDA_M
SCL_M
nEXT_INT
SCL_PANEL
SDA_PANEL
SCL_EMPTY
SDA_EMPTY
ROBOCOP (nADV721_INT)
nONENAND_INT
SDA_CH2
SCL_CH2
nPC_INT
GEM_5V
R296
R295
IC612
PCF8574ATS
0x74h
RA201
RA200
C249
R313
R316
R315
R314
R308
USBPWON-OFF
TU_nRESET_1
HDMI_2_HOTPLUG_CONTROL
DDC_EEPROM_WP
TU_nRESET_2
DNIE_nRESET
HDMI_1_HOTPLUG_CONTROL
nRESET_SIL9021
IC608
PCF8574ATS
0x78h
R277
R922
R280
R279
R278
R254
R276
R260
R259
R258
R257
R256
R255
R253
R275
ANY_GEMSTAR_SEL
nRESET_ANALOG
USB_VCC_CHECK
POD_VCC_CHECK
POD_VPP1_CHECK
POD_VPP2_CHECK
SERIAL_SEL
1394_LINK_RST
BD1030
CIC21J601NE
IC414
PCA9545PW
ADDR(0xE4)
C1599
C1308
R292
R293
R1312
R1301
R1295
R1296
R1316
R1311
R1320
R1300
R1303
R1307
R1314
SDA_EEPROM
SCL_EEPROM
SDA_M5
SCL_M5
SCL_PC_ROM (ONE PIN NET)
SDA_PC_ROM (ONE PIN NET)
SCL_HDMI_ROM (ONE PIN NET)
SDA_HDMI_ROM (ONE PIN NET)
For TEST(US)
DELETE
GEM_3.3V
R676
R683
R685
Q604
2N7002L
SEC_IO_nRST
IC207
S3C9428X35-S0T8
ADDR(0x60)
IC605
KIA7042AF-RTF
R654
C620
C667
C668
X201
HC-49/SM5H(12MHz,30ppm)
C648
C661
L602
C662
C658
D601
RLZ5.6B-TE-11
LNA_ON_OFF
2RF_S
EX_XTAL_ON_OFF_1
EX_XTAL_ON_OFF_2
SUB_TUNER_AGC
AGC_MON
M_AFT
S_AFT
PIN#15 MUST GND
PCJACK_ID
HDMI_1_ID
HDMI_2_ID
nRESET_ADV7401_1
COMPONENT_SEL (ONE PIN NET, MUST NOT USE)
2RF_S_2
EX_MAIN_EEPROM_WP
EX_CH1_EN
EX_CH2_EN
nHDMI_1080P_EN (ONE PIN NET)
RS232_GM_SEL_1
nRESET_SOUND
SCL_EMPTY
SDA_EMPTY
IC214
IDTQS32X245Q2
RA605
RA603
R693
R300
R694
RA606
RA604
MAIN_EEPROM_WP
CH1_EN
CH2_EN
nRESET_ADV7401
RS232_GM_SEL (ONE PIN NET)
XTAL_ON_OFF_1
XTAL_ON_OFF_2
TU_nRESET_1
TU_nRESET_2

10-3 DMD Board

10-3-1 DMD-1

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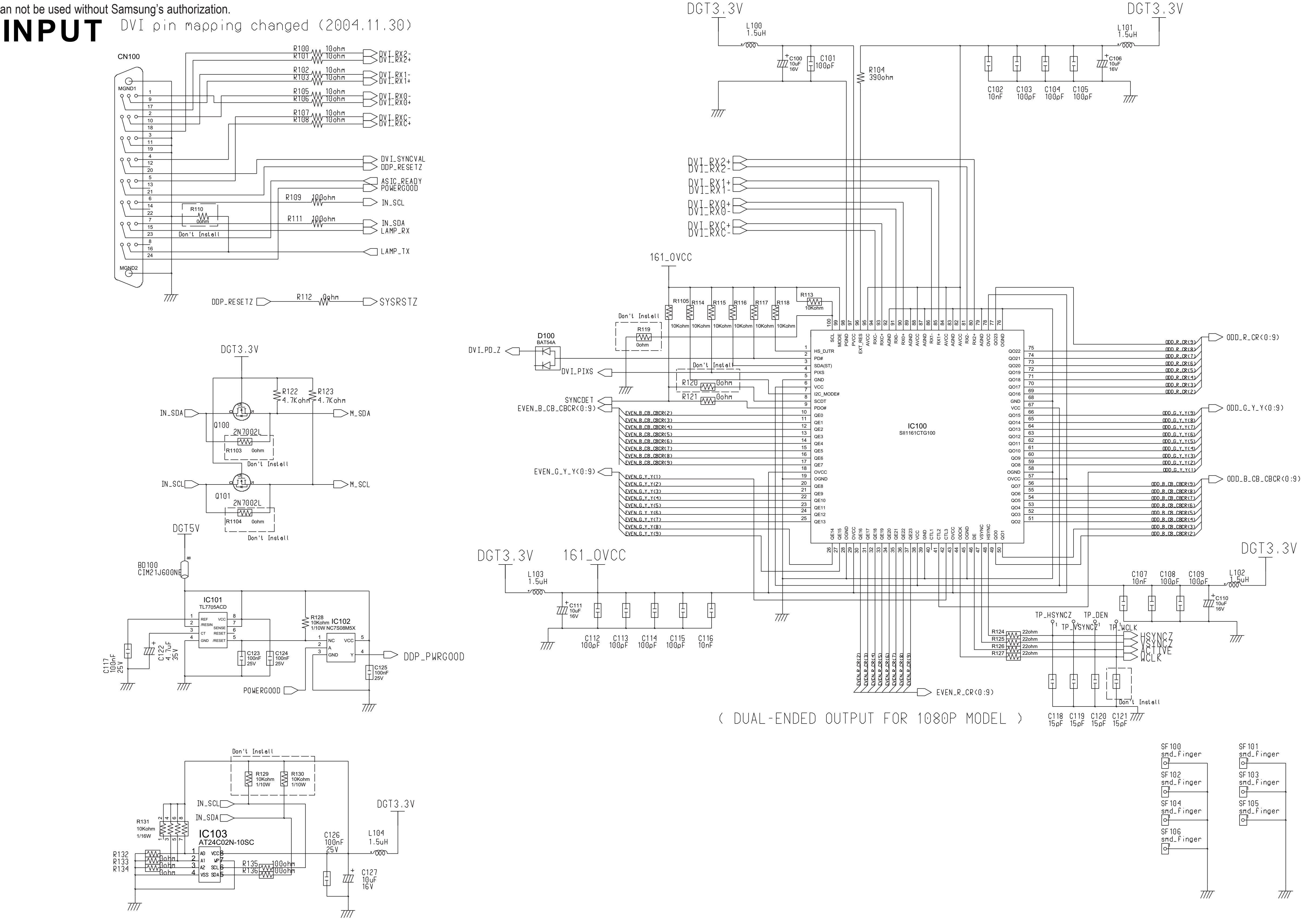
INPUT
DVI pin mapping changed (2004.11.30)
CN100
MGND1
MGND2
R100 10ohm
R101 10ohm
R102 10ohm
R103 10ohm
R105 10ohm
R106 10ohm
R107 10ohm
R108 10ohm
DVI_RX2-
DVI_RX2+
DVI_RX1-
DVI_RX1+
DVI_RX0-
DVI_RX0+
DVI_RXC-
DVI_RXC+
DVI_SYNCVAL
DDP_RESETZ
ASIC_READY
POWERGOOD
R109 100ohm
IN_SCL
R110 0ohm
Don't Install
R111 100ohm
IN_SDA
LAMP_RX
LAMP_TX
DDP_RESETZ
R112 0ohm
SYSRSTZ
DGT3.3V
R122 4.7Kohm
R123 4.7Kohm
IN_SDA
M_SDA
Q100
2N7002L
R1103 0ohm
Don't Install
IN_SCL
M_SCL
Q101
2N7002L
R1104 0ohm
Don't Install
DGT5V
BD100
CIM21J600NE
IC101
TL7705ACD
R128 10Kohm 1/10W
IC102 NC7S08M5X
C117 100nF 25V
C122 4.7uF 35V
C123 100nF 25V
C124 100nF 25V
C125 100nF 25V
DDP_PWRGOOD
POWERGOOD
Don't Install
R129 10Kohm 1/10W
R130 10Kohm 1/10W
IN_SCL
IN_SDA
R131 10Kohm 1/16W
IC103
AT24C02N-10SC
R132
R133
R134
0ohm
R135 100ohm
R136 100ohm
C126 100nF 25V
L104 1.5uH
C127 10uF 16V
DGT3.3V
DGT3.3V
L100 1.5uH
C100 10uF 16V
C101 100pF
R104 390ohm
DGT3.3V
L101 1.5uH
C106 10uF 16V
C102 10nF
C103 100pF
C104 100pF
C105 100pF
DVI_RX2+
DVI_RX2-
DVI_RX1+
DVI_RX1-
DVI_RX0+
DVI_RX0-
DVI_RXC+
DVI_RXC-
161_OVCC
R1105
R114
R115
R116
R117
R118
10Kohm
R113 10Kohm
Don't Install
R119 0ohm
D100
BAT54A
DVI_PD_Z
DVI_PIXS
Don't Install
R120 0ohm
R121 0ohm
SYNCDET
EVEN_B_CB_CBCR(0:9)
EVEN_G_Y_Y(0:9)
IC100
SII1161CTG100
ODD_R_CR(0:9)
ODD_G_Y_Y(0:9)
ODD_B_CB_CBCR(0:9)
DGT3.3V
161_OVCC
L103 1.5uH
C111 10uF 16V
C112 100pF
C113 100pF
C114 100pF
C115 100pF
C116 10nF
DGT3.3V
C107 10nF
C108 100pF
C109 100pF
L102 1.5uH
C110 10uF 16V
TP_HSYNCZ
TP_DEN
TP_VSYNCZ
TP_WCLK
R124 22ohm
R125 22ohm
R126 22ohm
R127 22ohm
HSYNCZ
VSYNCZ
ACTIVE
WCLK
EVEN_R_CR(0:9)
Don't Install
C118 15pF
C119 15pF
C120 15pF
C121 15pF
(DUAL-ENDED OUTPUT FOR 1080P MODEL)
SF100 smd_Finger
SF101 smd_Finger
SF102 smd_Finger
SF103 smd_Finger
SF104 smd_Finger
SF105 smd_Finger
SF106 smd_Finger

10-3-2 DMD-2

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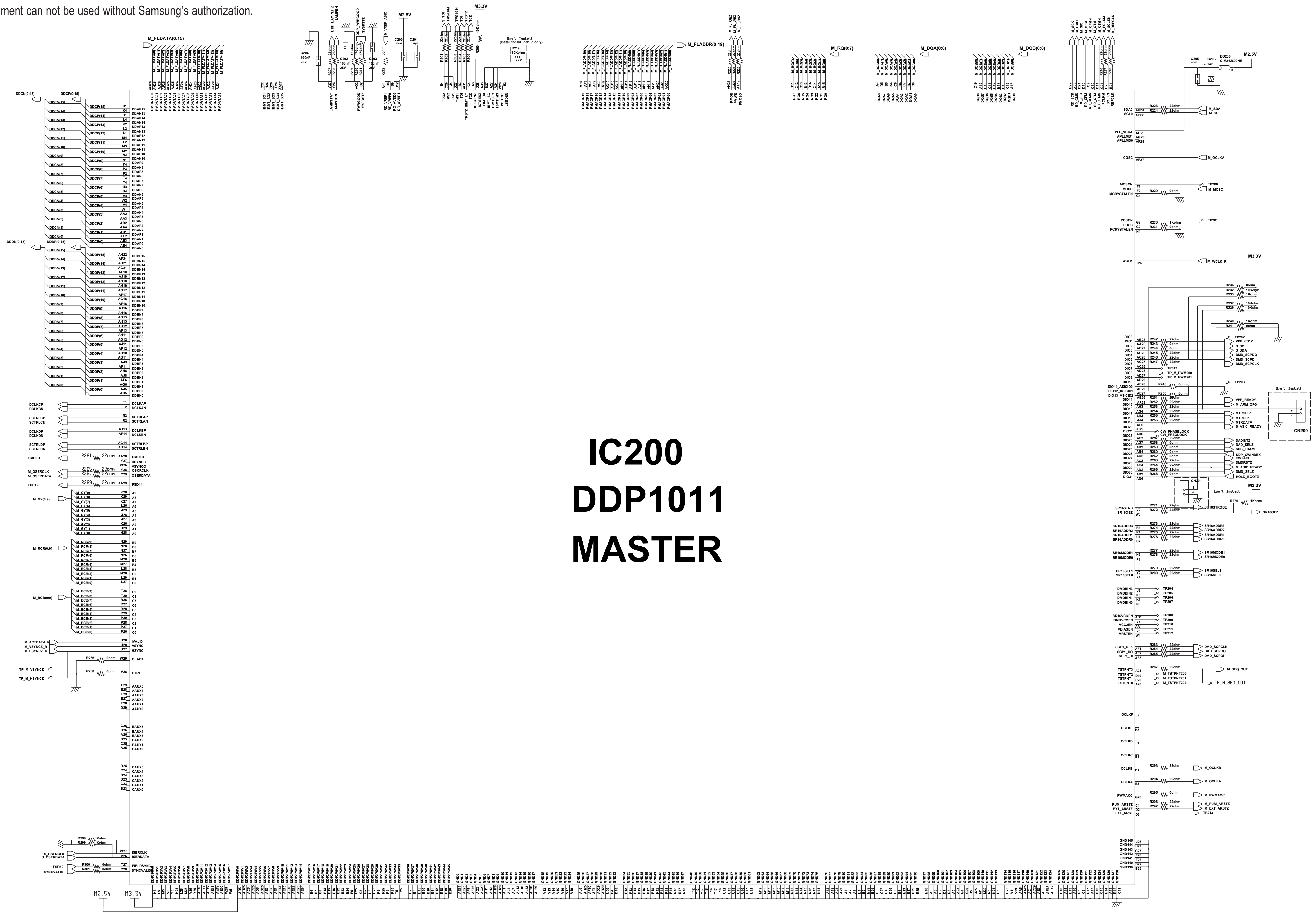
IC200
DDP1011
MASTER
M_FLDATA(0:15)
M_FLADDR(0:19)
M_RQ(0:7)
M_DQA(0:8)
M_DQB(0:8)
DDCN(0:15)
DDCP(0:15)
DDDN(0:15)
DDDP(0:15)
M_GY(0:9)
M_RCR(0:9)
M_BCB(0:9)
M2.5V
M3.3V
CN200
CN201
Don't Install

10-3-3 DMD-3

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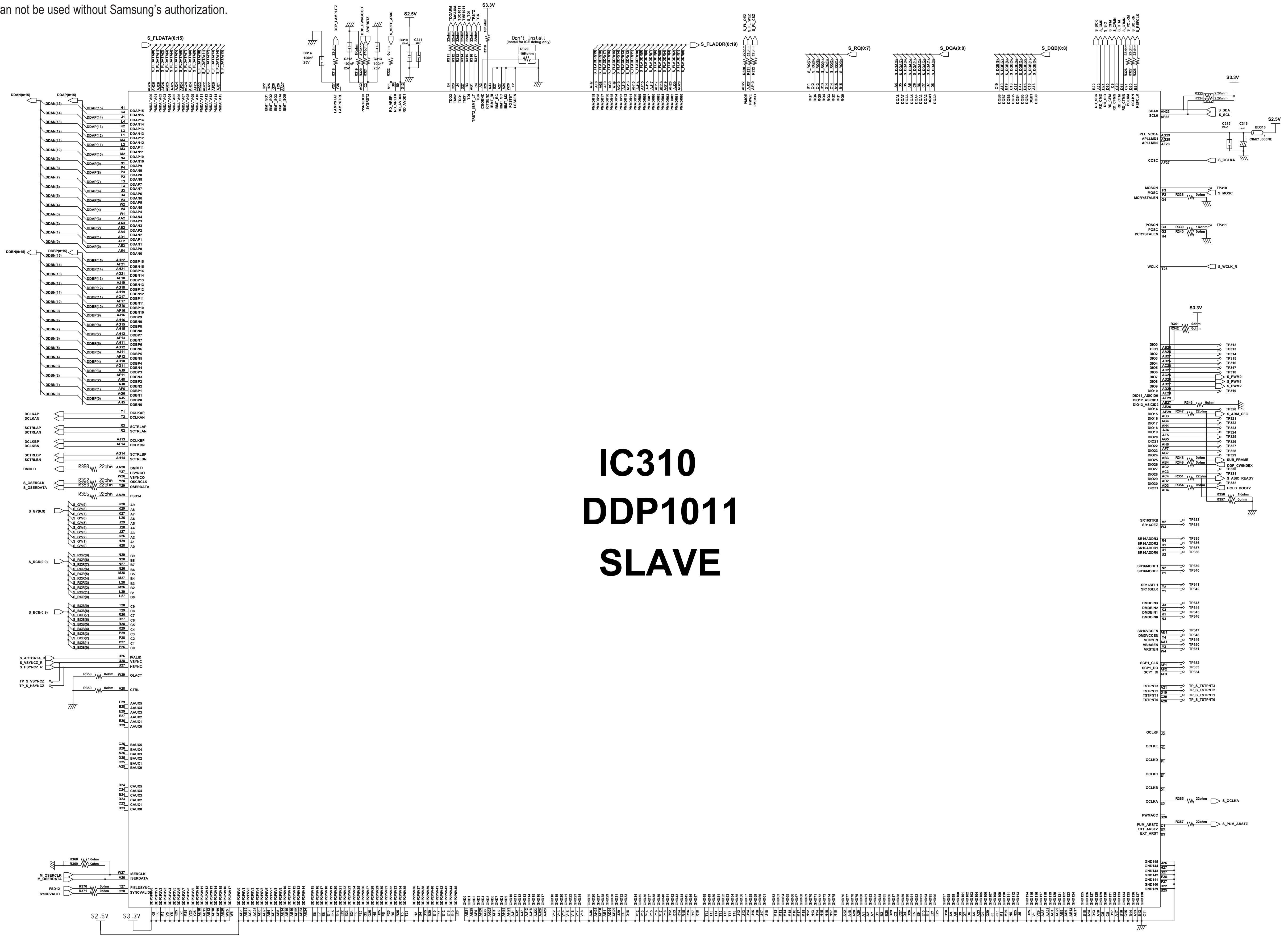
IC310
DDP1011
SLAVE
S_FLDATA(0:15)
S_FLADDR(0:19)
S_RQ(0:7)
S_DQA(0:8)
S_DQB(0:8)
S3.3V
S2.5V
Don't Install
(Install for ICE debug only)
DDAN(0:15)
DDAP(0:15)
DDBN(0:15)
DDBP(0:15)
DCLKAP
DCLKAN
SCTRLAP
SCTRLAN
DCLKBP
DCLKBN
SCTRLBP
SCTRLBN
DMDLD
S_OSERCLK
S_OSERDATA
S_GY(0:9)
S_RCR(0:9)
S_BCB(0:9)
S_ACTDATA_R
S_VSYNCZ_R
S_HSYNCZ_R
TP_S_VSYNCZ
TP_S_HSYNCZ
M_OSERCLK
M_OSERDATA
FSD12
SYNCVALID
S_SDA
S_SCL
S_OCLKA
S_MOSC
S_WCLK_R
S_PWM0
S_PWM1
S_PWM2
S_ARM_CFG
SUB_FRAME
DDP_CWINDEX
S_ASIC_READY
HOLD_BOOTZ
S_PUM_ARSTZ
BD310
CIM21J600NE

10-3-4 DMD-4

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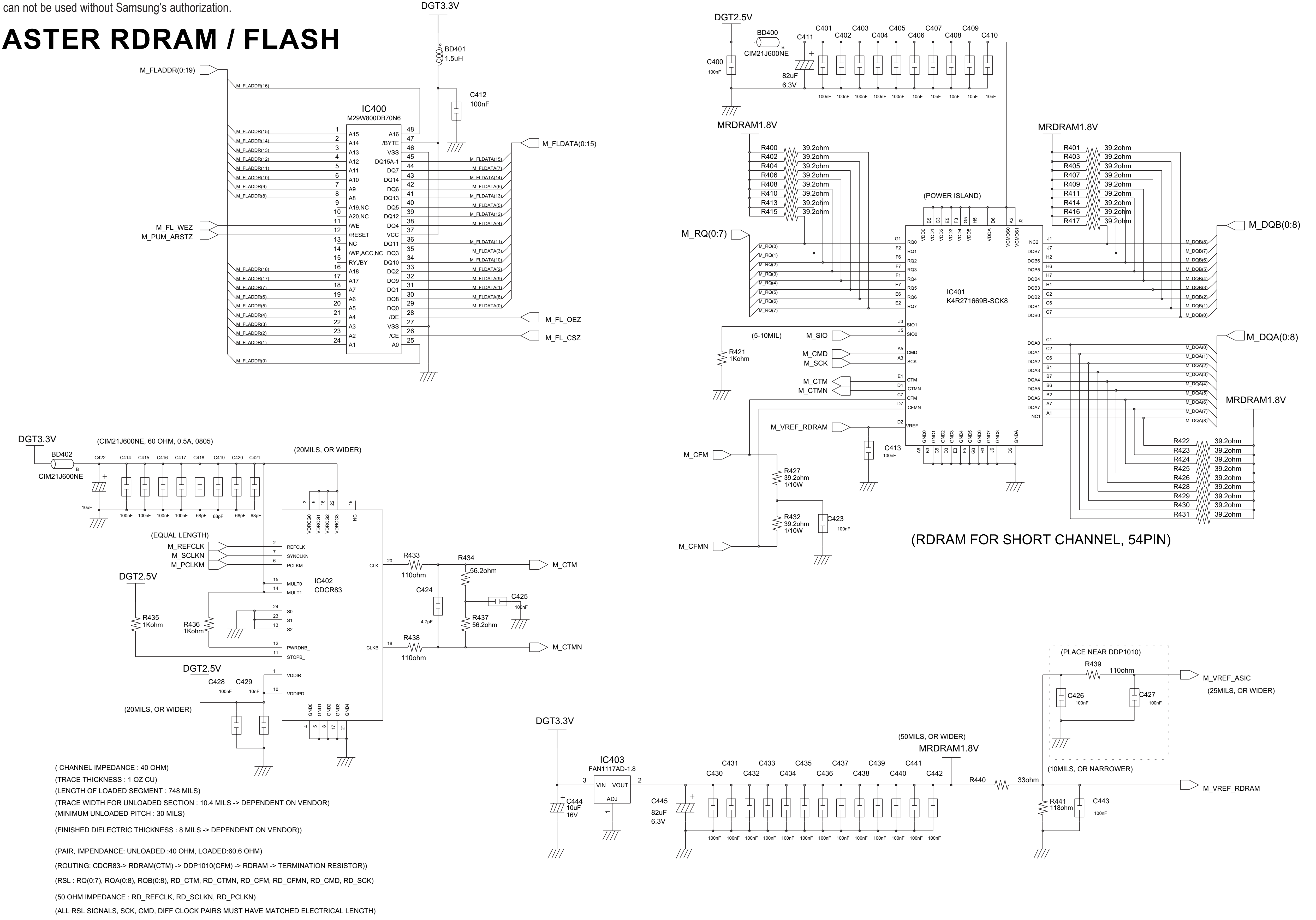
MASTER RDRAM / FLASH



DGT3.3V
BD401
1.5uH
C412
100nF
M_FLADDR(0:19)
IC400
M29W800DB70N6
M_FLDATA(0:15)
M_FL_WEZ
M_PUM_ARSTZ
M_FL_OEZ
M_FL_CSZ
A15
A14
A13
A12
A11
A10
A9
A8
A19,NC
A20,NC
/WE
/RESET
NC
/WP,ACC,NC
RY,/BY
A18
A17
A7
A6
A5
A4
A3
A2
A1
A16
/BYTE
VSS
DQ15A-1
DQ7
DQ14
DQ6
DQ13
DQ5
DQ12
DQ4
VCC
DQ11
DQ3
DQ10
DQ2
DQ9
DQ1
DQ8
DQ0
/OE
VSS
/CE
A0
DGT2.5V
BD400
CIM21J600NE
C400
100nF
C411
82uF
6.3V
C401
C402
C403
C404
C405
C406
C407
C408
C409
C410
MRDRAM1.8V
R400
R402
R404
R406
R408
R410
R413
R415
R401
R403
R405
R407
R409
R411
R414
R416
R417
39.2ohm
(POWER ISLAND)
M_RQ(0:7)
M_DQB(0:8)
M_DQA(0:8)
IC401
K4R271669B-SCK8
(5-10MIL)
M_SIO
R421
1Kohm
M_CMD
M_SCK
M_CTM
M_CTMN
M_VREF_RDRAM
C413
100nF
M_CFM
R427
39.2ohm
1/10W
R432
39.2ohm
1/10W
C423
100nF
M_CFMN
R422
R423
R424
R425
R426
R428
R429
R430
R431
(RDRAM FOR SHORT CHANNEL, 54PIN)
DGT3.3V
BD402
CIM21J600NE
(CIM21J600NE, 60 OHM, 0.5A, 0805)
C422
C414
C415
C416
C417
C418
C419
C420
C421
10uF
(20MILS, OR WIDER)
(EQUAL LENGTH)
M_REFCLK
M_SCLKN
M_PCLKM
IC402
CDCR83
REFCLK
SYNCLKN
PCLKM
MULT0
MULT1
S0
S1
S2
PWRDNB_
STOPB_
VDDIR
VDDIPD
CLK
CLKB
R433
110ohm
R434
56.2ohm
C424
4.7pF
C425
100nF
R437
56.2ohm
R438
110ohm
M_CTM
M_CTMN
DGT2.5V
R435
1Kohm
R436
1Kohm
C428
C429
(20MILS, OR WIDER)
(PLACE NEAR DDP1010)
R439
110ohm
C426
C427
M_VREF_ASIC
(25MILS, OR WIDER)
DGT3.3V
IC403
FAN1117AD-1.8
VIN
VOUT
ADJ
C444
10uF
16V
C445
82uF
6.3V
C430
C431
C432
C433
C434
C435
C436
C437
C438
C439
C440
C441
C442
(50MILS, OR WIDER)
MRDRAM1.8V
R440
33ohm
R441
118ohm
C443
(10MILS, OR NARROWER)
M_VREF_RDRAM

(CHANNEL IMPEDANCE : 40 OHM)

(TRACE THICKNESS : 1 OZ CU)

(LENGTH OF LOADED SEGMENT : 748 MILS)

(TRACE WIDTH FOR UNLOADED SECTION : 10.4 MILS -> DEPENDENT ON VENDOR)

(MINIMUM UNLOADED PITCH : 30 MILS)

(FINISHED DIELECTRIC THICKNESS : 8 MILS -> DEPENDENT ON VENDOR))

(PAIR, IMPENDANCE: UNLOADED :40 OHM, LOADED:60.6 OHM)

(ROUTING: CDCR83-> RDRAM(CTM) -> DDP1010(CFM) -> RDRAM -> TERMINATION RESISTOR))

(RSL : RQ(0:7), RQA(0:8), RQB(0:8), RD_CTM, RD_CTMN, RD_CFM, RD_CFMN, RD_CMD, RD_SCK)

(50 OHM IMPEDANCE : RD_REFCLK, RD_SCLKN, RD_PCLKN)

(ALL RSL SIGNALS, SCK, CMD, DIFF CLOCK PAIRS MUST HAVE MATCHED ELECTRICAL LENGTH)

10-3-5 DMD-5

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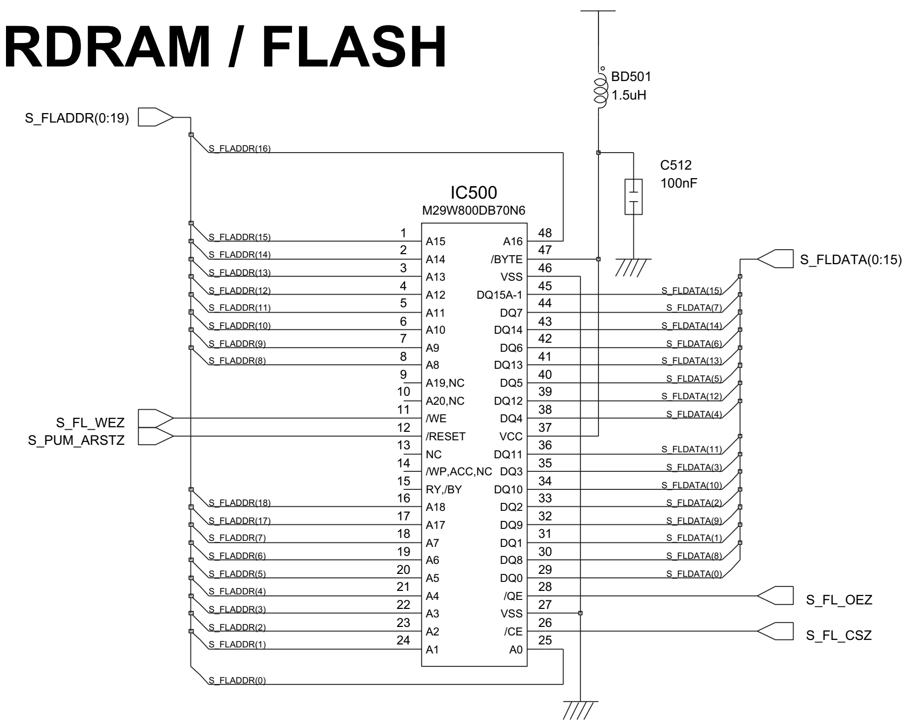
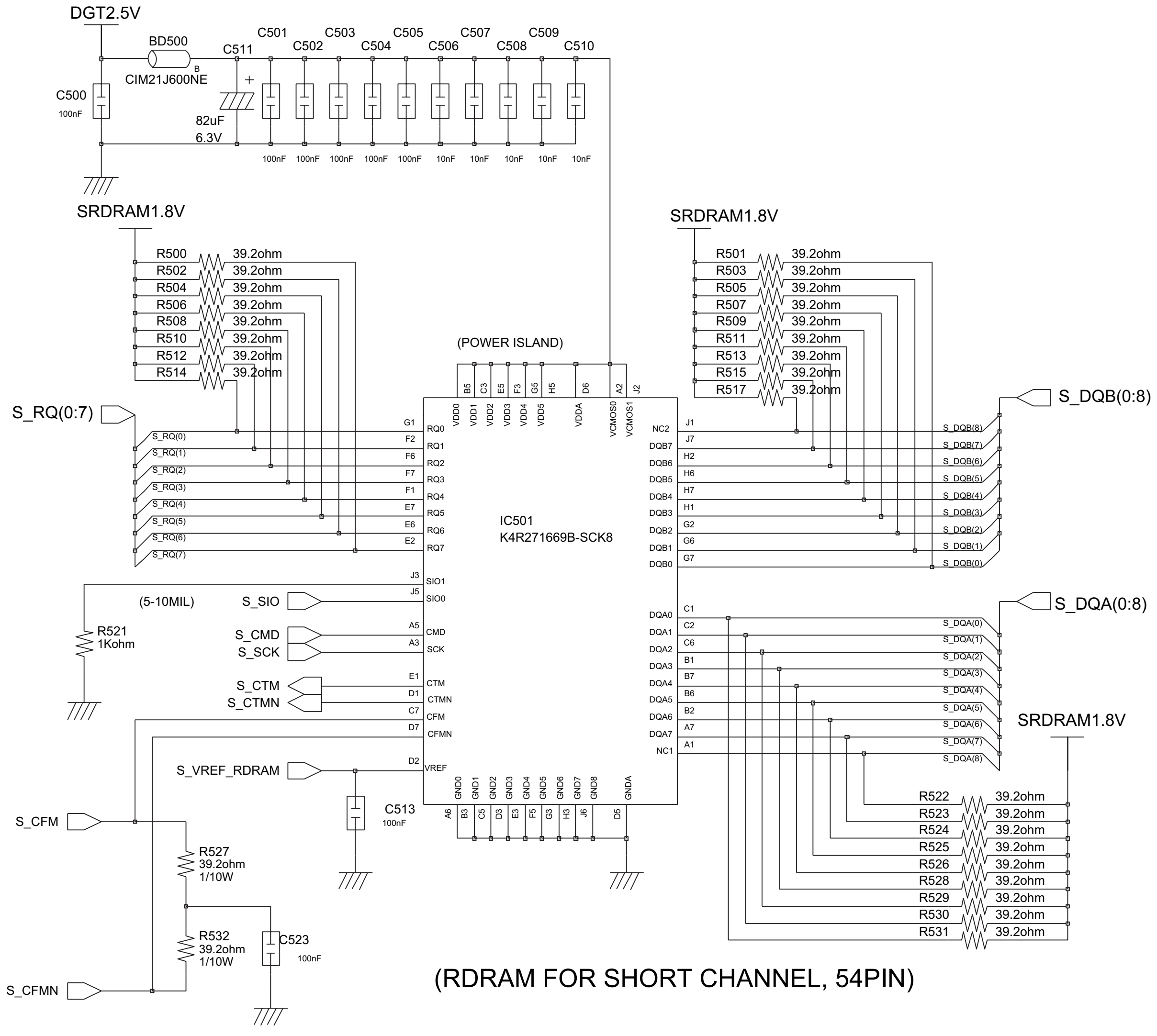
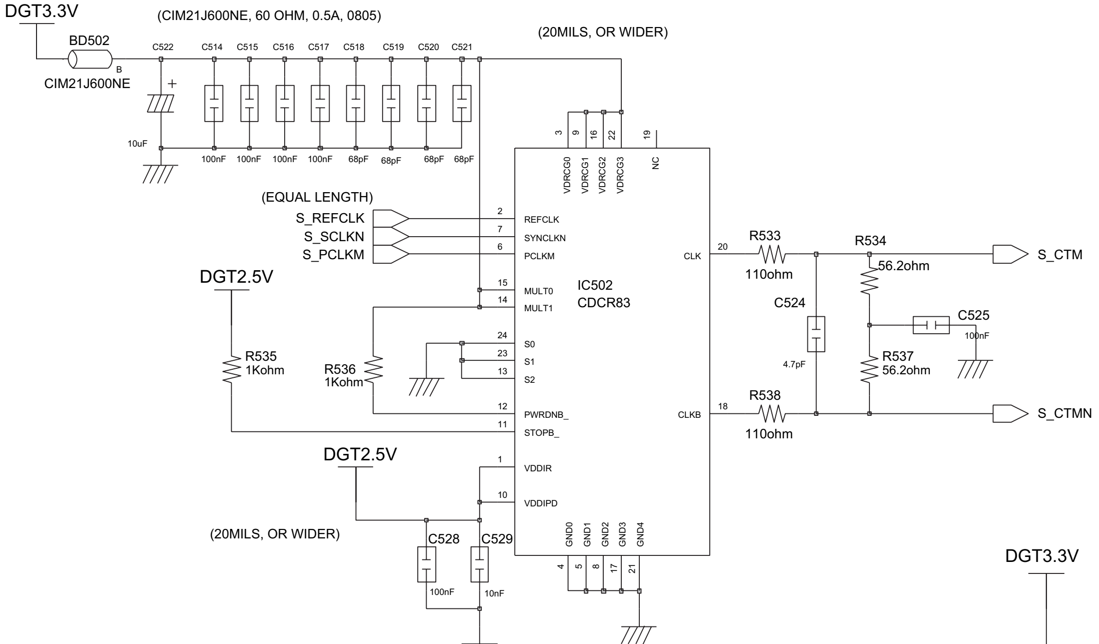
SLAVE RDRAM / FLASH


DGT3.3V
BD501
1.5uH
C512
100nF
S_FLADDR(0:19)
IC500
M29W800DB70N6
S_FLDATA(0:15)
S_FL_WEZ
S_PUM_ARSTZ
S_FL_OEZ
S_FL_CSZ
A15 A14 A13 A12 A11 A10 A9 A8 A19,NC A20,NC /WE /RESET NC /WP,ACC,NC RY,/BY A18 A17 A7 A6 A5 A4 A3 A2 A1
A16 /BYTE VSS DQ15A-1 DQ7 DQ14 DQ6 DQ13 DQ5 DQ12 DQ4 VCC DQ11 DQ3 DQ10 DQ2 DQ9 DQ1 DQ8 DQ0 /OE VSS /CE A0


DGT2.5V
BD500
CIM21J600NE
C500 100nF
C511 82uF 6.3V
C501 C502 C503 C504 C505 C506 C507 C508 C509 C510
100nF 100nF 100nF 100nF 100nF 10nF 10nF 10nF 10nF 10nF
SRDRAM1.8V
R500 R502 R504 R506 R508 R510 R512 R514 39.2ohm
R501 R503 R505 R507 R509 R511 R513 R515 R517 39.2ohm
(POWER ISLAND)
S_RQ(0:7)
S_DQB(0:8)
S_DQA(0:8)
IC501
K4R271669B-SCK8
(5-10MIL)
S_SIO
R521 1Kohm
S_CMD
S_SCK
S_CTM
S_CTMN
S_VREF_RDRAM
C513 100nF
S_CFM
S_CFMN
R527 39.2ohm 1/10W
R532 39.2ohm 1/10W
C523 100nF
R522 R523 R524 R525 R526 R528 R529 R530 R531 39.2ohm

(RDRAM FOR SHORT CHANNEL, 54PIN)


DGT3.3V
BD502
CIM21J600NE
(CIM21J600NE, 60 OHM, 0.5A, 0805)
C522 10uF
C514 C515 C516 C517 C518 C519 C520 C521
100nF 100nF 100nF 100nF 68pF 68pF 68pF 68pF
(20MILS, OR WIDER)
(EQUAL LENGTH)
S_REFCLK
S_SCLKN
S_PCLKM
DGT2.5V
R535 1Kohm
R536 1Kohm
IC502
CDCR83
REFCLK SYNCLKN PCLKM MULT0 MULT1 S0 S1 S2 PWRDNB_ STOPB_ VDDIR VDDIPD
CLK CLKB
R533 110ohm
R534 56.2ohm
C524 4.7pF
C525 100nF
R537 56.2ohm
R538 110ohm
S_CTM
S_CTMN
DGT2.5V
(20MILS, OR WIDER)
C528 100nF
C529 10nF

(CHANNEL IMPEDANCE : 40 OHM)
(TRACE THICKNESS : 1 OZ CU)
(LENGTH OF LOADED SEGMENT : 748 MILS)
(TRACE WIDTH FOR UNLOADED SECTION : 10.4 MILS -> DEPENDENT ON VENDOR)
(MINIMUM UNLOADED PITCH : 30 MILS)

(FINISHED DIELECTRIC THICKNESS : 8 MILS -> DEPENDENT ON VENDOR))

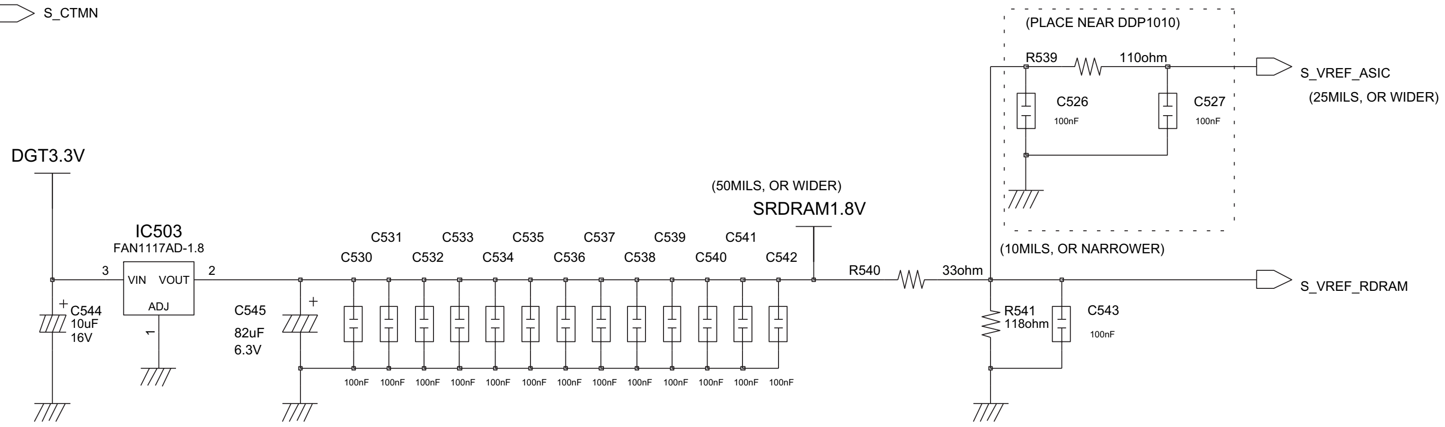
(PAIR, IMPENDANCE: UNLOADED :40 OHM, LOADED:60.6 OHM)

(ROUTING: CDCR83-> RDRAM(CTM) -> DDP1010(CFM) -> RDRAM -> TERMINATION RESISTOR))

(RSL : RQ(0:7), RQA(0:8), RQB(0:8), RD_CTM, RD_CTMN, RD_CFM, RD_CFMN, RD_CMD, RD_SCK)

(50 OHM IMPEDANCE : RD_REFCLK, RD_SCLKN, RD_PCLKN)

(ALL RSL SIGNALS, SCK, CMD, DIFF CLOCK PAIRS MUST HAVE MATCHED ELECTRICAL LENGTH)


(PLACE NEAR DDP1010)
R539 110ohm
C526 100nF
C527 100nF
S_VREF_ASIC
(25MILS, OR WIDER)
DGT3.3V
IC503
FAN1117AD-1.8
VIN VOUT ADJ
C544 10uF 16V
C545 82uF 6.3V
C530 C531 C532 C533 C534 C535 C536 C537 C538 C539 C540 C541 C542
100nF
(50MILS, OR WIDER)
SRDRAM1.8V
R540 33ohm
(10MILS, OR NARROWER)
R541 118ohm
C543 100nF
S_VREF_RDRAM

10-3-6 DMD-6

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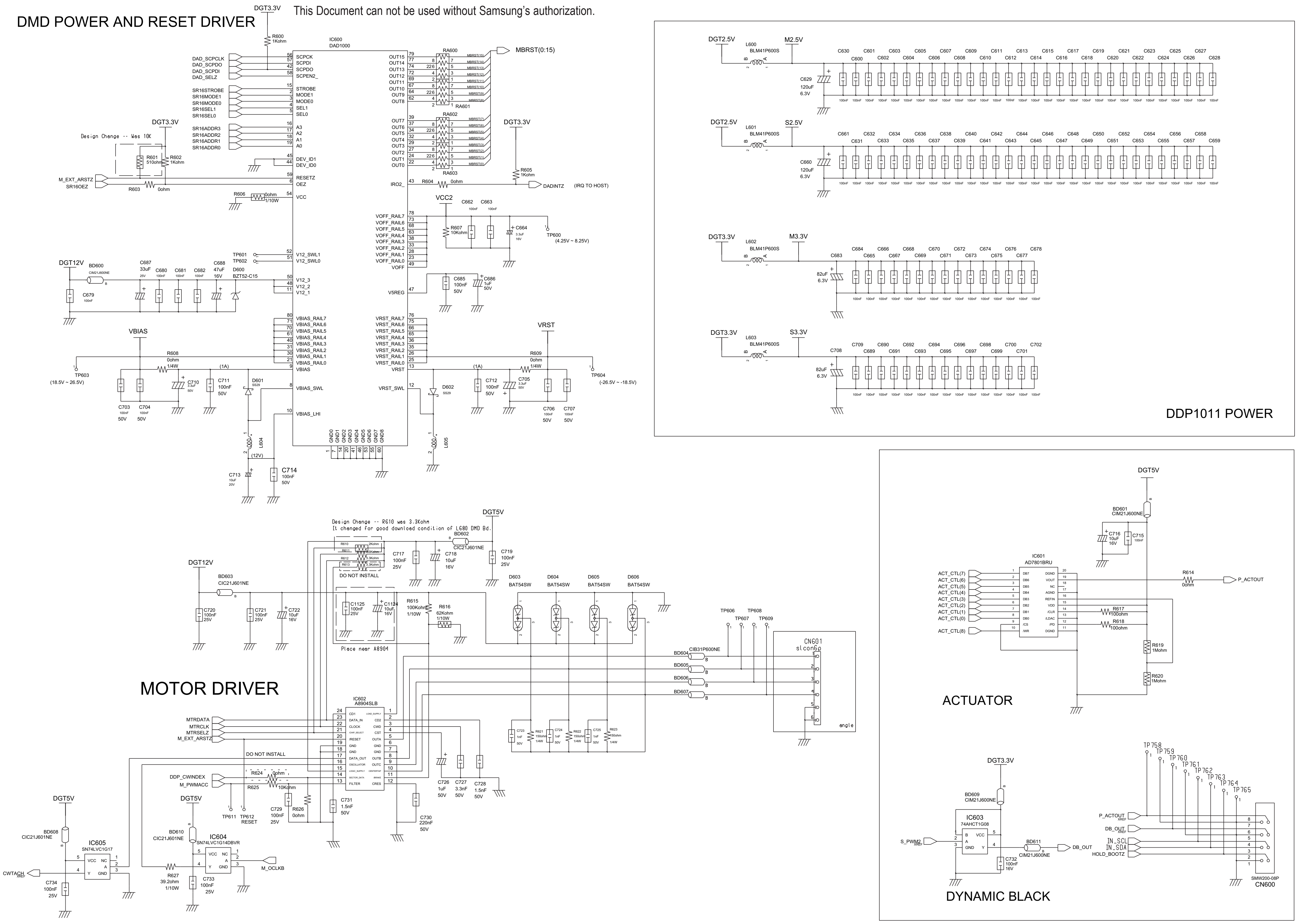
DMD POWER AND RESET DRIVER
DGT3.3V
IC600
DAD1000
R600
1Kohm
DAD_SCPCLK
DAD_SCPDO
DAD_SCPDI
DAD_SELZ
SR16STROBE
SR16MODE1
SR16MODE0
SR16SEL1
SR16SEL0
SR16ADDR3
SR16ADDR2
SR16ADDR1
SR16ADDR0
Design Change -- Was 10K
R601
510ohm
R602
1Kohm
M_EXT_ARSTZ
SR16OEZ
R603
0ohm
R606
0ohm
1/10W
RA600
RA601
RA602
RA603
MBRST(0:15)
R605
1Kohm
R604
0ohm
DADINTZ
(IRQ TO HOST)
VCC2
C662
C663
R607
10Kohm
C664
TP600
(4.25V ~ 8.25V)
DGT12V
BD600
C679
C687
33uF
25V
C680
C681
C682
C688
47uF
16V
D600
BZT52-C15
TP601
TP602
C685
100nF
50V
C686
1uF
50V
VBIAS
VRST
R608
0ohm
1/4W
(1A)
TP603
(18.5V ~ 26.5V)
C703
C704
C710
C711
100nF
50V
D601
R609
0ohm
1/4W
C712
100nF
50V
C705
D602
C706
C707
TP604
(-26.5V ~ -18.5V)
L604
L605
(12V)
C713
C714
100nF
50V
DDP1011 POWER
DGT2.5V
M2.5V
L600
BLM41P600S
C629
120uF
6.3V
DGT2.5V
S2.5V
L601
BLM41P600S
C660
120uF
6.3V
DGT3.3V
M3.3V
L602
BLM41P600S
82uF
6.3V
DGT3.3V
S3.3V
L603
BLM41P600S
82uF
6.3V
MOTOR DRIVER
Design Change -- R610 was 3.3Kohm
It changed for good download condition of L680 DMD Bd.
DGT5V
BD602
CIC21J601NE
DO NOT INSTALL
R610
R611
R612
R613
C717
100nF
25V
C718
10uF
16V
C719
100nF
25V
DGT12V
BD603
CIC21J601NE
C720
100nF
25V
C721
100nF
25V
C722
10uF
16V
C1125
100nF
25V
C1124
10uF
16V
R615
100Kohm
1/10W
R616
62Kohm
1/10W
Place near A8904
D603
BAT54SW
D604
BAT54SW
D605
BAT54SW
D606
BAT54SW
TP606
TP607
TP608
TP609
CN601
BD604
BD605
BD606
BD607
CIB31P600NE
C723
R621
C724
R622
C725
R623
IC602
A8904SLB
MTRDATA
MTRCLK
MTRSELZ
M_EXT_ARSTZ
DO NOT INSTALL
DDP_CWINDEX
M_PWMACC
R624
0ohm
R625
10Kohm
TP611
TP612
RESET
C729
100nF
25V
R626
0ohm
C731
1.5nF
50V
C726
1uF
50V
C727
3.3nF
50V
C728
1.5nF
50V
C730
220nF
50V
DGT5V
BD608
CIC21J601NE
IC605
SN74LVC1G17
CWTACH
C734
100nF
25V
DGT5V
BD610
CIC21J601NE
IC604
SN74LVC1G14DBVR
M_OCLKB
R627
39.2ohm
1/10W
C733
100nF
25V
ACTUATOR
DGT5V
BD601
CIM21J600NE
C716
10uF
16V
C715
IC601
AD7801BRU
ACT_CTL(7)
ACT_CTL(6)
ACT_CTL(5)
ACT_CTL(4)
ACT_CTL(3)
ACT_CTL(2)
ACT_CTL(1)
ACT_CTL(0)
ACT_CTL(8)
R614
0ohm
P_ACTOUT
R617
100ohm
R618
100ohm
R619
1Mohm
R620
1Mohm
DYNAMIC BLACK
DGT3.3V
BD609
CIM21J600NE
IC603
74AHCT1G08
S_PWM2
BD611
CIM21J600NE
DB_OUT
C732
100nF
16V
TP758
TP759
TP760
TP761
TP762
TP763
TP764
TP765
P_ACTOUT
DB_OUT
IN_SCL
IN_SDA
HOLD_BOOTZ
SMW200-08P
CN600

10-3-7 DMD-7

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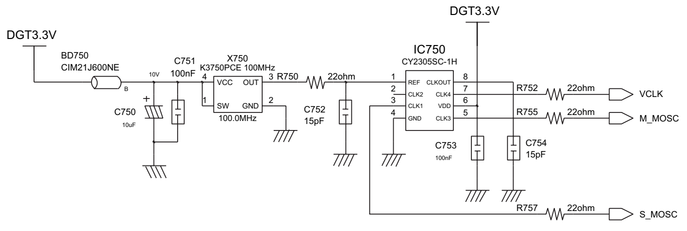
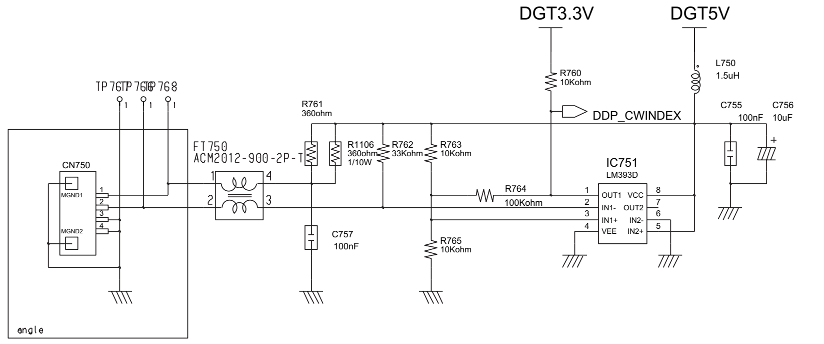
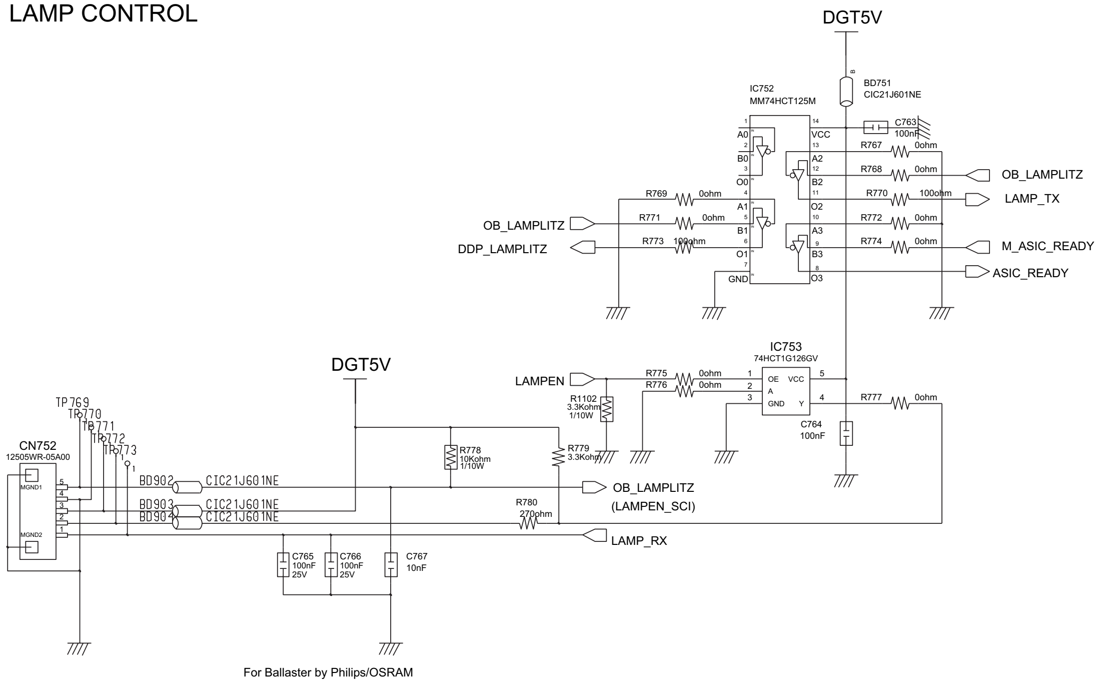
OSCILLATOR CLOCK


DGT3.3V
BD750
CIM21J600NE
B
10V
C750
10uF
C751
100nF
X750
K3750PCE 100MHz
VCC
OUT
SW
GND
100.0MHz
R750
22ohm
C752
15pF
DGT3.3V
IC750
CY2305SC-1H
REF
CLKOUT
CLK2
CLK4
CLK1
VDD
GND
CLK3
C753
100nF
C754
15pF
R752
22ohm
VCLK
R755
22ohm
M_MOSC
R757
22ohm
S_MOSC

COLOR WHEEL SENSOR DETECTION

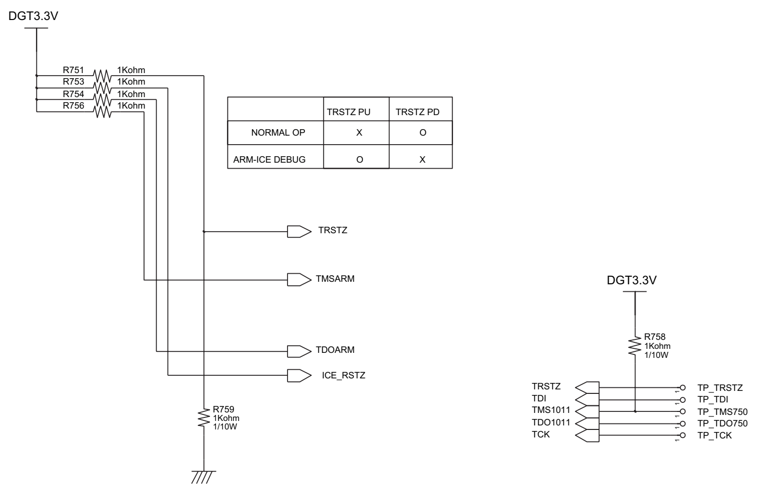

DGT3.3V
DGT5V
TP767
TP766
TP768
CN750
MGND1
MGND2
angle
FT750
ACM2012-900-2P-T
R761
360ohm
R1106
360ohm
1/10W
R762
33Kohm
R763
10Kohm
C757
100nF
R760
10Kohm
DDP_CWINDEX
R764
100Kohm
R765
10Kohm
IC751
LM393D
OUT1
VCC
IN1-
OUT2
IN1+
IN2-
VEE
IN2+
L750
1.5uH
C755
100nF
C756
10uF

LAMP CONTROL


DGT5V
BD751
CIC21J601NE
IC752
MM74HCT125M
A0
B0
O0
A1
B1
O1
GND
VCC
A2
B2
O2
A3
B3
O3
C763
100nF
R767
0ohm
R768
0ohm
OB_LAMPLITZ
R770
100ohm
LAMP_TX
R772
0ohm
R774
0ohm
M_ASIC_READY
ASIC_READY
R769
0ohm
R771
0ohm
OB_LAMPLITZ
R773
100ohm
DDP_LAMPLITZ
IC753
74HCT1G126GV
OE
VCC
A
GND
Y
LAMPEN
R775
0ohm
R776
0ohm
R1102
3.3Kohm
1/10W
R777
0ohm
C764
100nF
DGT5V
TP769
TP770
TP771
TP772
TP773
CN752
12505WR-05A00
MGND1
MGND2
BD902
BD903
BD904
CIC21J601NE
CIC21J601NE
CIC21J601NE
R778
10Kohm
1/10W
R779
3.3Kohm
OB_LAMPLITZ
(LAMPEN_SCI)
R780
270ohm
LAMP_RX
C765
100nF
25V
C766
100nF
25V
C767
10nF

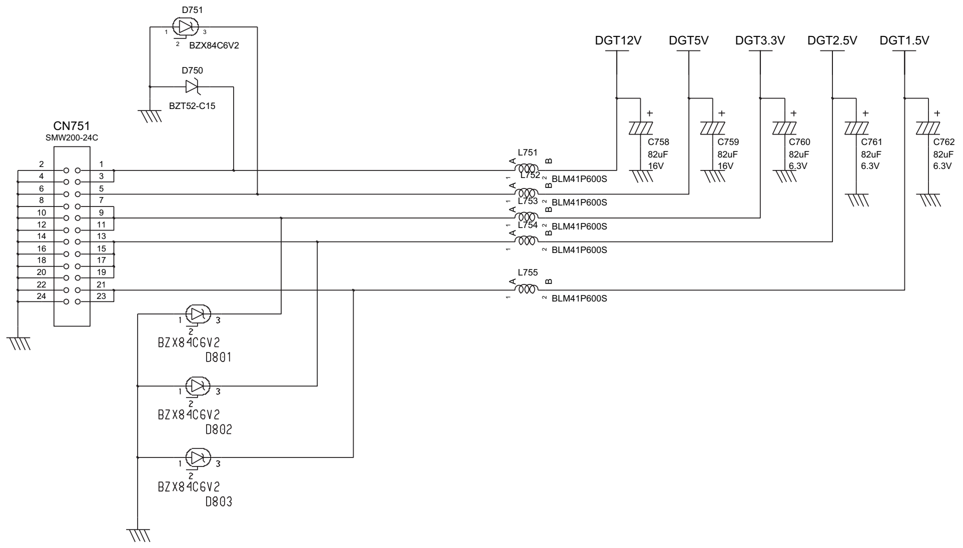
For Ballaster by Philips/OSRAM

ARM ICE I/F

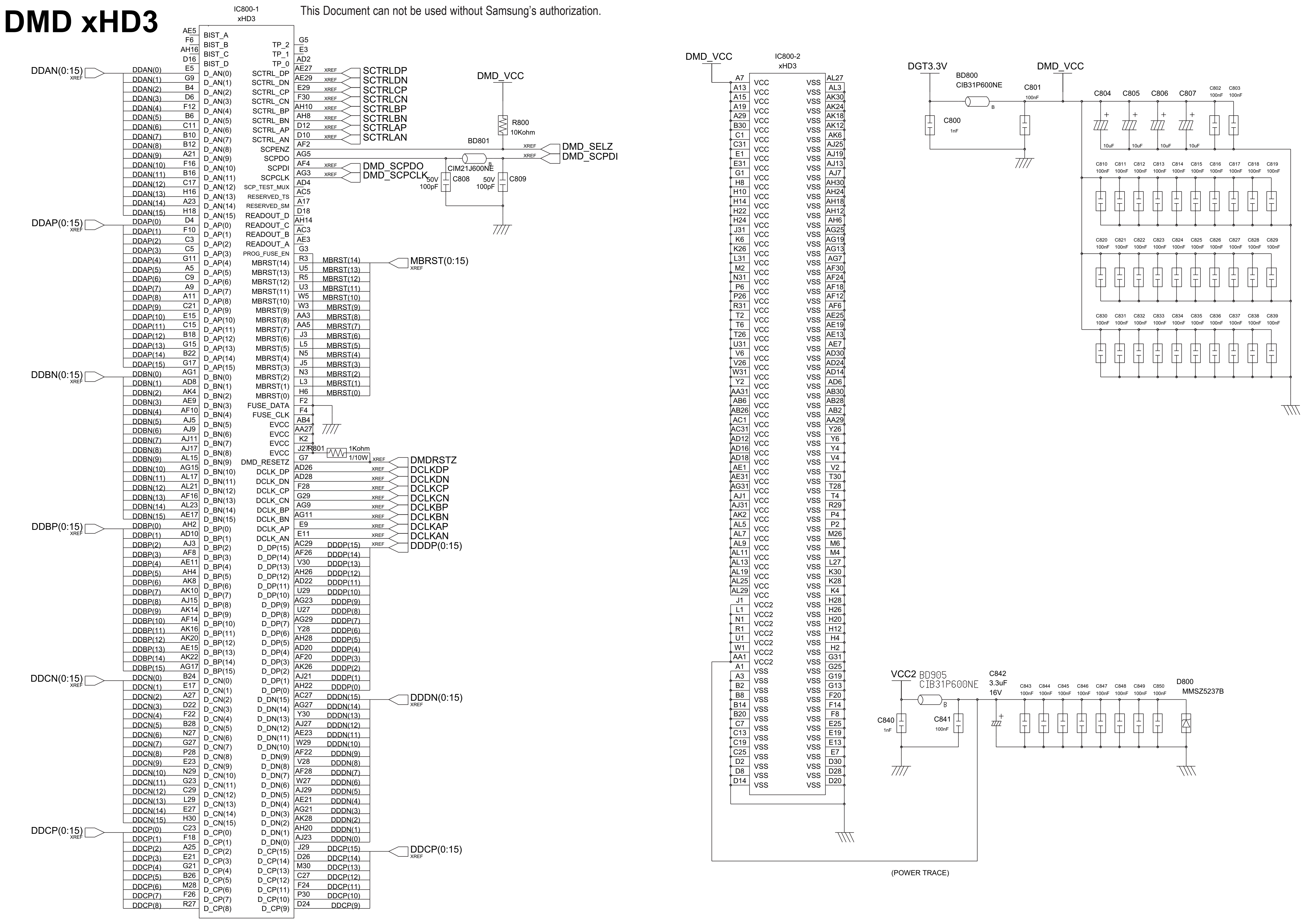

DGT3.3V
R751
R753
R754
R756
1Kohm
1Kohm
1Kohm
1Kohm
TRSTZ
TMSARM
TDOARM
ICE_RSTZ
R759
1Kohm
1/10W
DGT3.3V
R758
1Kohm
1/10W
TRSTZ
TDI
TMS1011
TDO1011
TCK
TP_TRSTZ
TP_TDI
TP_TMS750
TP_TDO750
TP_TCK

	TRSTZ PU	TRSTZ PD
NORMAL OP	X	O
ARM-ICE DEBUG	O	X

Main Power


D751
BZX84C6V2
D750
BZT52-C15
CN751
SMW200-24C
DGT12V
DGT5V
DGT3.3V
DGT2.5V
DGT1.5V
C758
82uF
16V
C759
82uF
16V
C760
82uF
6.3V
C761
82uF
6.3V
C762
82uF
6.3V
L751
L752
L753
L754
L755
BLM41P600S
BLM41P600S
BLM41P600S
BLM41P600S
BLM41P600S
BZX84C6V2
D801
BZX84C6V2
D802
BZX84C6V2
D803

10-3-8 DMD-8


DMD xHD3
IC800-1
xHD3
This Document can not be used without Samsung's authorization.
BIST_A AE5
BIST_B F6
BIST_C AH16
BIST_D D16
TP_2 G5
TP_1 E3
TP_0 AD2
DDAN(0:15)
XREF
DDAN(0) E5 D_AN(0)
DDAN(1) G9 D_AN(1)
DDAN(2) B4 D_AN(2)
DDAN(3) D6 D_AN(3)
DDAN(4) F12 D_AN(4)
DDAN(5) B6 D_AN(5)
DDAN(6) C11 D_AN(6)
DDAN(7) B10 D_AN(7)
DDAN(8) B12 D_AN(8)
DDAN(9) A21 D_AN(9)
DDAN(10) F16 D_AN(10)
DDAN(11) B16 D_AN(11)
DDAN(12) C17 D_AN(12)
DDAN(13) H16 D_AN(13)
DDAN(14) A23 D_AN(14)
DDAN(15) H18 D_AN(15)
DDAP(0:15)
DDAP(0) D4 D_AP(0)
DDAP(1) F10 D_AP(1)
DDAP(2) C3 D_AP(2)
DDAP(3) C5 D_AP(3)
DDAP(4) G11 D_AP(4)
DDAP(5) A5 D_AP(5)
DDAP(6) C9 D_AP(6)
DDAP(7) A9 D_AP(7)
DDAP(8) A11 D_AP(8)
DDAP(9) C21 D_AP(9)
DDAP(10) E15 D_AP(10)
DDAP(11) C15 D_AP(11)
DDAP(12) B18 D_AP(12)
DDAP(13) G15 D_AP(13)
DDAP(14) B22 D_AP(14)
DDAP(15) G17 D_AP(15)
DDBN(0:15)
DDBN(0) AG1 D_BN(0)
DDBN(1) AD8 D_BN(1)
DDBN(2) AK4 D_BN(2)
DDBN(3) AE9 D_BN(3)
DDBN(4) AF10 D_BN(4)
DDBN(5) AJ5 D_BN(5)
DDBN(6) AJ9 D_BN(6)
DDBN(7) AJ11 D_BN(7)
DDBN(8) AJ17 D_BN(8)
DDBN(9) AL15 D_BN(9)
DDBN(10) AG15 D_BN(10)
DDBN(11) AL17 D_BN(11)
DDBN(12) AL21 D_BN(12)
DDBN(13) AF16 D_BN(13)
DDBN(14) AL23 D_BN(14)
DDBN(15) AE17 D_BN(15)
DDBP(0:15)
DDBP(0) AH2 D_BP(0)
DDBP(1) AD10 D_BP(1)
DDBP(2) AJ3 D_BP(2)
DDBP(3) AF8 D_BP(3)
DDBP(4) AE11 D_BP(4)
DDBP(5) AH4 D_BP(5)
DDBP(6) AK8 D_BP(6)
DDBP(7) AK10 D_BP(7)
DDBP(8) AJ15 D_BP(8)
DDBP(9) AK14 D_BP(9)
DDBP(10) AF14 D_BP(10)
DDBP(11) AK16 D_BP(11)
DDBP(12) AK20 D_BP(12)
DDBP(13) AE15 D_BP(13)
DDBP(14) AK22 D_BP(14)
DDBP(15) AG17 D_BP(15)
DDCN(0:15)
DDCN(0) B24 D_CN(0)
DDCN(1) E17 D_CN(1)
DDCN(2) A27 D_CN(2)
DDCN(3) D22 D_CN(3)
DDCN(4) F22 D_CN(4)
DDCN(5) B28 D_CN(5)
DDCN(6) N27 D_CN(6)
DDCN(7) G27 D_CN(7)
DDCN(8) P28 D_CN(8)
DDCN(9) E23 D_CN(9)
DDCN(10) N29 D_CN(10)
DDCN(11) G23 D_CN(11)
DDCN(12) C29 D_CN(12)
DDCN(13) L29 D_CN(13)
DDCN(14) E27 D_CN(14)
DDCN(15) H30 D_CN(15)
DDCP(0:15)
DDCP(0) C23 D_CP(0)
DDCP(1) F18 D_CP(1)
DDCP(2) A25 D_CP(2)
DDCP(3) E21 D_CP(3)
DDCP(4) G21 D_CP(4)
DDCP(5) B26 D_CP(5)
DDCP(6) M28 D_CP(6)
DDCP(7) F26 D_CP(7)
DDCP(8) R27 D_CP(8)
SCTRL_DP AE27 SCTRLDP
SCTRL_DN AE29 SCTRLDN
SCTRL_CP E29 SCTRLCP
SCTRL_CN F30 SCTRLCN
SCTRL_BP AH10 SCTRLBP
SCTRL_BN AH8 SCTRLBN
SCTRL_AP D12 SCTRLAP
SCTRL_AN D10 SCTRLAN
SCPENZ AF2
SCPDO AG5
SCPDI AF4 DMD_SCPDO
SCPCLK AG3 DMD_SCPCLK
SCP_TEST_MUX AD4
RESERVED_TS AC5
RESERVED_SM A17
READOUT_D D18
READOUT_C AH14
READOUT_B AC3
READOUT_A AE3
PROG_FUSE_EN G3
DMD_VCC
R800
10Kohm
BD801
CIM21J600NE
DMD_SELZ
DMD_SCPDI
50V 100pF C808
50V 100pF C809
MBRST(14) R3
MBRST(13) U5
MBRST(12) R5
MBRST(11) U3
MBRST(10) W5
MBRST(9) W3
MBRST(8) AA3
MBRST(7) AA5
MBRST(6) J3
MBRST(5) L5
MBRST(4) N5
MBRST(3) J5
MBRST(2) N3
MBRST(1) L3
MBRST(0) H6
MBRST(0:15)
FUSE_DATA F2
FUSE_CLK F4
EVCC AB4
EVCC AA27
EVCC K2
EVCC J27
R801 1Kohm 1/10W
DMD_RESETZ G7 DMDRSTZ
DCLK_DP AD26 DCLKDP
DCLK_DN AD28 DCLKDN
DCLK_CP F28 DCLKCP
DCLK_CN G29 DCLKCN
DCLK_BP AG9 DCLKBP
DCLK_BN AG11 DCLKBN
DCLK_AP E9 DCLKAP
DCLK_AN E11 DCLKAN
D_DP(15) AC29 DDDP(15)
D_DP(14) AF26 DDDP(14)
D_DP(13) V30 DDDP(13)
D_DP(12) AH26 DDDP(12)
D_DP(11) AD22 DDDP(11)
D_DP(10) U29 DDDP(10)
D_DP(9) AG23 DDDP(9)
D_DP(8) U27 DDDP(8)
D_DP(7) AG29 DDDP(7)
D_DP(6) Y28 DDDP(6)
D_DP(5) AH28 DDDP(5)
D_DP(4) AD20 DDDP(4)
D_DP(3) AF20 DDDP(3)
D_DP(2) AK26 DDDP(2)
D_DP(1) AJ21 DDDP(1)
D_DP(0) AH22 DDDP(0)
DDDP(0:15)
D_DN(15) AC27 DDDN(15)
D_DN(14) AG27 DDDN(14)
D_DN(13) Y30 DDDN(13)
D_DN(12) AJ27 DDDN(12)
D_DN(11) AE23 DDDN(11)
D_DN(10) W29 DDDN(10)
D_DN(9) AF22 DDDN(9)
D_DN(8) V28 DDDN(8)
D_DN(7) AF28 DDDN(7)
D_DN(6) W27 DDDN(6)
D_DN(5) AJ29 DDDN(5)
D_DN(4) AE21 DDDN(4)
D_DN(3) AG21 DDDN(3)
D_DN(2) AK28 DDDN(2)
D_DN(1) AH20 DDDN(1)
D_DN(0) AJ23 DDDN(0)
DDDN(0:15)
D_CP(15) J29 DDCP(15)
D_CP(14) D26 DDCP(14)
D_CP(13) M30 DDCP(13)
D_CP(12) C27 DDCP(12)
D_CP(11) F24 DDCP(11)
D_CP(10) P30 DDCP(10)
D_CP(9) D24 DDCP(9)
DDCP(0:15)
DMD_VCC
IC800-2
xHD3
VCC A7 A13 A15 A19 A29 B30 C1 C31 E1 E31 G1 H8 H10 H14 H22 H24 J31 K6 K26 L31 M2 N31 P6 P26 R31 T2 T6 T26 U31 V6 V26 W31 Y2 AA31 AB6 AB26 AC1 AC31 AD12 AD16 AD18 AE1 AE31 AG31 AJ1 AJ31 AK2 AL5 AL7 AL9 AL11 AL13 AL19 AL25 AL29
VCC2 J1 L1 N1 R1 U1 W1 AA1
VSS A1 A3 B2 B8 B14 B20 C7 C13 C19 C25 D2 D8 D14
VSS AL27 AL3 AK30 AK24 AK18 AK12 AK6 AJ25 AJ19 AJ13 AJ7 AH30 AH24 AH18 AH12 AH6 AG25 AG19 AG13 AG7 AF30 AF24 AF18 AF12 AF6 AE25 AE19 AE13 AE7 AD30 AD24 AD14 AD6 AB30 AB28 AB2 AA29 Y26 Y6 Y4 V4 V2 T30 T28 T4 R29 P4 P2 M26 M6 M4 L27 K30 K28 K4 H28 H26 H20 H12 H4 H2 G31 G25 G19 G13 F20 F14 F8 E25 E19 E13 E7 D30 D28 D20
(POWER TRACE)
DGT3.3V
BD800
CIB31P600NE
DMD_VCC
C800 1nF
C801 100nF
C802 100nF
C803 100nF
C804 C805 C806 C807 10uF
C810 C811 C812 C813 C814 C815 C816 C817 C818 C819 100nF
C820 C821 C822 C823 C824 C825 C826 C827 C828 C829 100nF
C830 C831 C832 C833 C834 C835 C836 C837 C838 C839 100nF
VCC2
BD905
CIB31P600NE
C840 1nF
C841 100nF
C842 3.3uF 16V
C843 C844 C845 C846 C847 C848 C849 C850 100nF
D800
MMSZ5237B

10-3-9 DMD-9

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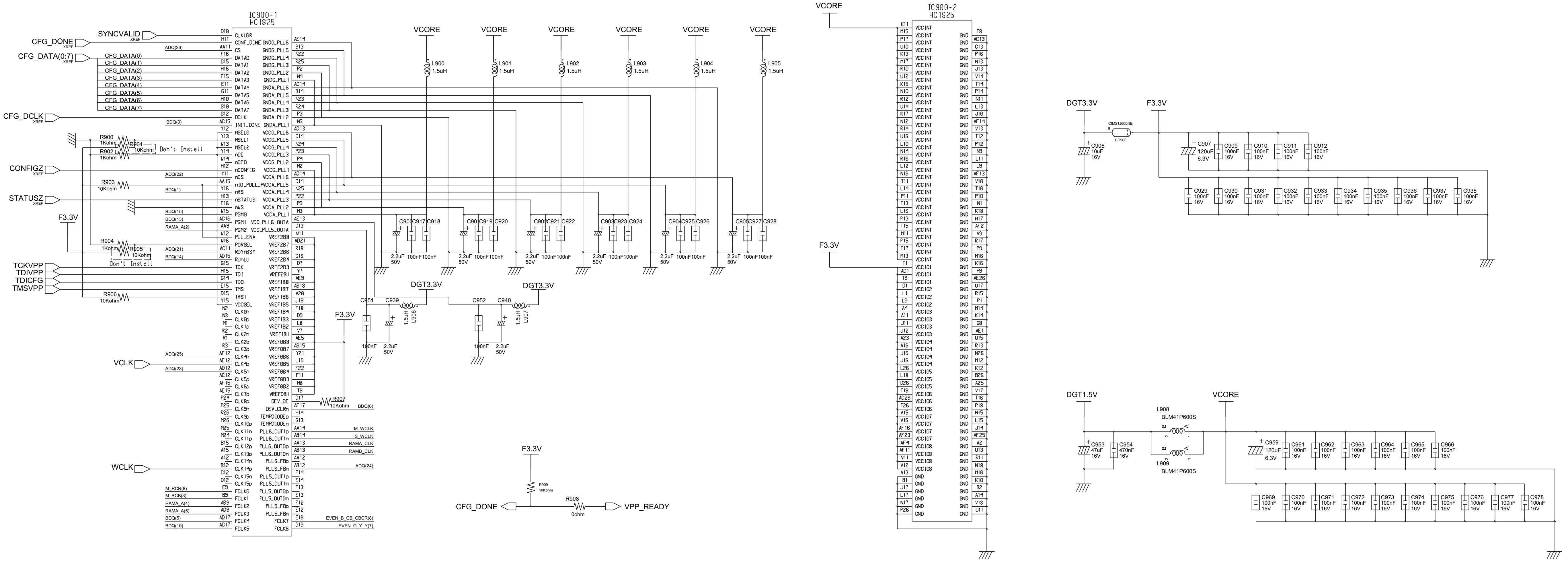
FPGA CFG / POWER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HC1S25
SYNCVALID
CFG_DONE
CFG_DATA(0:7)
CFG_DATA(0)
CFG_DATA(1)
CFG_DATA(2)
CFG_DATA(3)
CFG_DATA(4)
CFG_DATA(5)
CFG_DATA(6)
CFG_DATA(7)
CFG_DCLK
CONFIGZ
STATUSZ
F3.3V
R900 1Kohm
R901 10Kohm
Don't Install
R902 1Kohm
R903 10Kohm
R904 1Kohm
R905 10Kohm
Don't Install
R906 10Kohm
TCKVPP
TDIVPP
TDICFG
TMSVPP
VCLK
WCLK
ADQ(26)
BDQ(0)
ADQ(22)
BDQ(1)
BDQ(15)
BDQ(13)
RAMA_A(2)
ADQ(21)
BDQ(14)
ADQ(25)
ADQ(23)
M_RCR(8)
M_BCB(3)
RAMA_A(4)
RAMA_A(5)
BDQ(5)
BDQ(10)
R907 10Kohm
BDQ(6)
M_WCLK
S_WCLK
RAMA_CLK
RAMB_CLK
ADQ(24)
EVEN_B_CB_CBCR(8)
EVEN_G_Y_Y(7)
VCORE
L900 1.5uH
L901 1.5uH
L902 1.5uH
L903 1.5uH
L904 1.5uH
L905 1.5uH
C900 C917 C918
C901 C919 C920
C902 C921 C922
C903 C923 C924
C904 C925 C926
C905 C927 C928
2.2uF 50V
100nF
DGT3.3V
C951 C939
L906 1.5uH
C952 C940
L907 1.5uH
100nF
2.2uF 50V
F3.3V
R909 10Kohm
R908 0ohm
CFG_DONE
VPP_READY
IC900-2
HC1S25
VCCINT
VCCIO1
VCCIO2
VCCIO3
VCCIO4
VCCIO5
VCCIO6
VCCIO7
VCCIO8
GND
DGT3.3V
F3.3V
CIM21J600NE
BD900
C906 10uF 16V
C907 120uF 6.3V
C909 C910 C911 C912 100nF 16V
C929 C930 C931 C932 C933 C934 C935 C936 C937 C938 100nF 16V
DGT1.5V
VCORE
L908 BLM41P600S
L909 BLM41P600S
C953 47uF 16V
C954 470nF 16V
C959 120uF 6.3V
C961 C962 C963 C964 C965 C966 100nF 16V
C969 C970 C971 C972 C973 C974 C975 C976 C977 C978 100nF 16V

10-3-10 DMD-10

FPGA I/O

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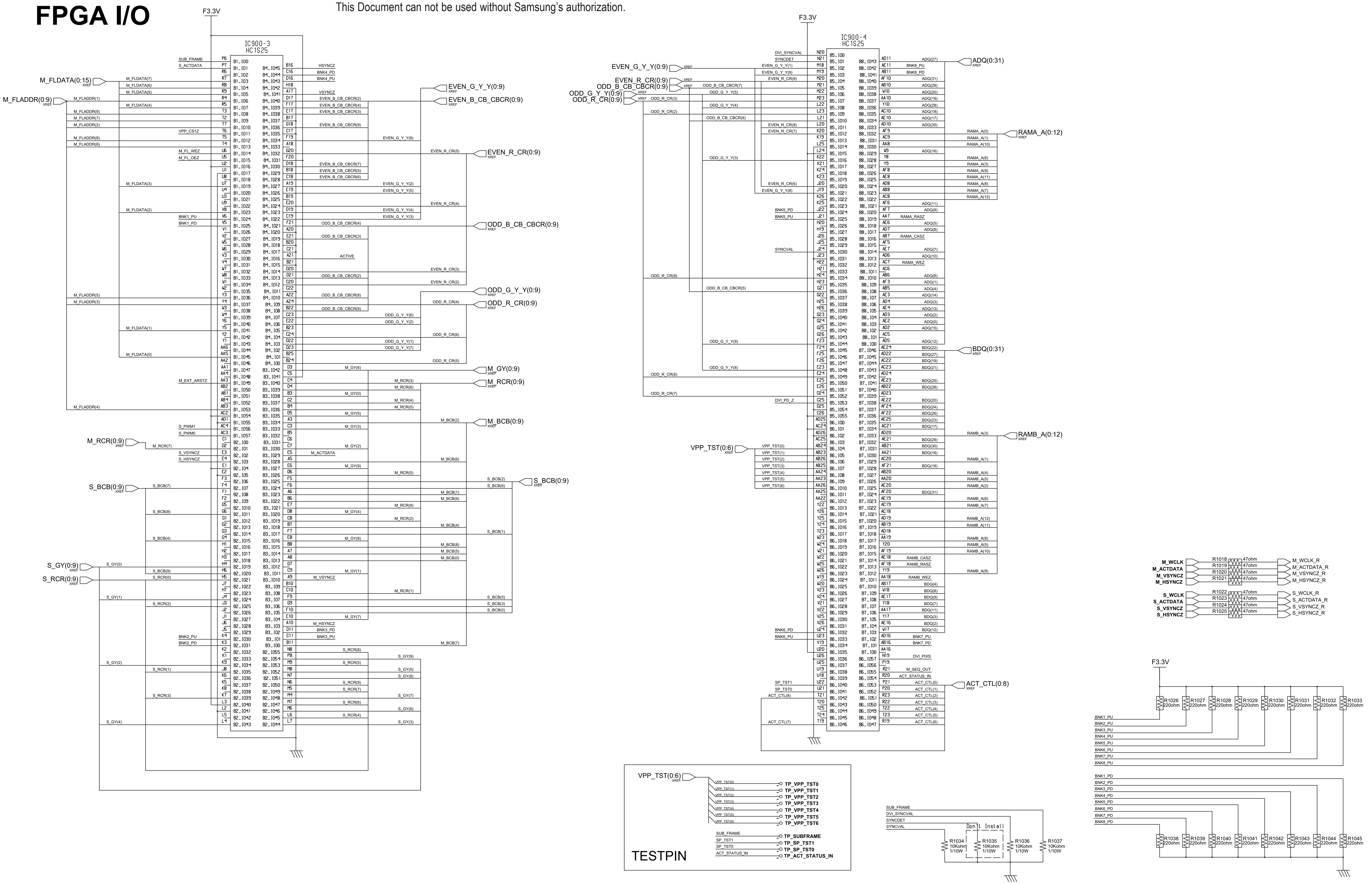
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HC1S25
M_FLDATA(0:15)
M_FLADDR(0:9)
M_RCR(0:9)
S_BCB(0:9)
S_GY(0:9)
S_RCR(0:9)
EVEN_G_Y_Y(0:9)
EVEN_B_CB_CBCR(0:9)
EVEN_R_CR(0:9)
ODD_B_CB_CBCR(0:9)
ODD_G_Y_Y(0:9)
ODD_R_CR(0:9)
M_GY(0:9)
M_RCR(0:9)
M_BCB(0:9)
S_BCB(0:9)
IC900-4
HC1S25
ADQ(0:31)
RAMA_A(0:12)
BDQ(0:31)
RAMB_A(0:12)
VPP_TST(0:6)
ACT_CTL(0:8)
M_WCLK
M_ACTDATA
M_VSYNCZ
M_HSYNCZ
R1018 47ohm
R1019 47ohm
R1020 47ohm
R1021 47ohm
M_WCLK_R
M_ACTDATA_R
M_VSYNCZ_R
M_HSYNCZ_R
S_WCLK
S_ACTDATA
S_VSYNCZ
S_HSYNCZ
R1022 47ohm
R1023 47ohm
R1024 47ohm
R1025 47ohm
S_WCLK_R
S_ACTDATA_R
S_VSYNCZ_R
S_HSYNCZ_R
R1026 220ohm
R1027 220ohm
R1028 220ohm
R1029 220ohm
R1030 220ohm
R1031 220ohm
R1032 220ohm
R1033 220ohm
R1038 220ohm
R1039 220ohm
R1040 220ohm
R1041 220ohm
R1042 220ohm
R1043 220ohm
R1044 220ohm
R1045 220ohm
Don't Install
R1034 10Kohm 1/10W
R1035 10Kohm 1/10W
R1036 10Kohm 1/10W
R1037 10Kohm 1/10W
TP_VPP_TST0
TP_VPP_TST1
TP_VPP_TST2
TP_VPP_TST3
TP_VPP_TST4
TP_VPP_TST5
TP_VPP_TST6
TP_SUBFRAME
TP_SP_TST1
TP_SP_TST0
TP_ACT_STATUS_IN
TESTPIN

10-3-11 DMD-11

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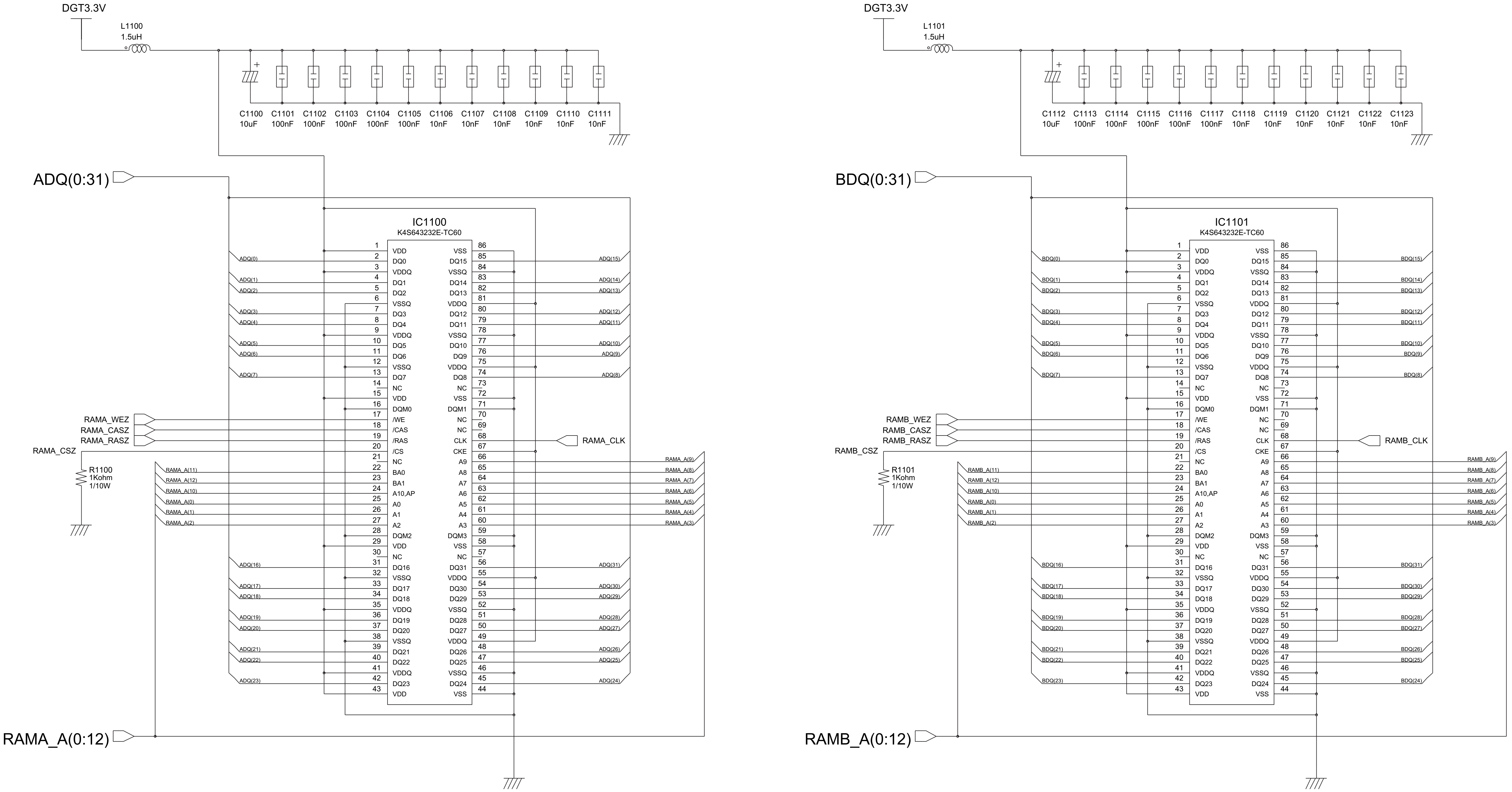
SDRAM


DGT3.3V
L1100
1.5uH
C1100 10uF
C1101 100nF
C1102 100nF
C1103 100nF
C1104 100nF
C1105 100nF
C1106 10nF
C1107 10nF
C1108 10nF
C1109 10nF
C1110 10nF
C1111 10nF
ADQ(0:31)
IC1100
K4S643232E-TC60
RAMA_WEZ
RAMA_CASZ
RAMA_RASZ
RAMA_CSZ
RAMA_CLK
R1100
1Kohm
1/10W
RAMA_A(0:12)
DGT3.3V
L1101
1.5uH
C1112 10uF
C1113 100nF
C1114 100nF
C1115 100nF
C1116 100nF
C1117 100nF
C1118 10nF
C1119 10nF
C1120 10nF
C1121 10nF
C1122 10nF
C1123 10nF
BDQ(0:31)
IC1101
K4S643232E-TC60
RAMB_WEZ
RAMB_CASZ
RAMB_RASZ
RAMB_CSZ
RAMB_CLK
R1101
1Kohm
1/10W
RAMB_A(0:12)
VDD
DQ0
VDDQ
DQ1
DQ2
VSSQ
DQ3
DQ4
VDDQ
DQ5
DQ6
VSSQ
DQ7
NC
VDD
DQM0
/WE
/CAS
/RAS
/CS
NC
BA0
BA1
A10,AP
A0
A1
A2
DQM2
VDD
NC
DQ16
VSSQ
DQ17
DQ18
VDDQ
DQ19
DQ20
VSSQ
DQ21
DQ22
VDDQ
DQ23
VDD
VSS
DQ15
VSSQ
DQ14
DQ13
VDDQ
DQ12
DQ11
VSSQ
DQ10
DQ9
VDDQ
DQ8
NC
VSS
DQM1
NC
NC
CLK
CKE
A9
A8
A7
A6
A5
A4
A3
DQM3
VSS
NC
DQ31
VDDQ
DQ30
DQ29
VSSQ
DQ28
DQ27
VDDQ
DQ26
DQ25
VSSQ
DQ24
VSS

10-4 Power

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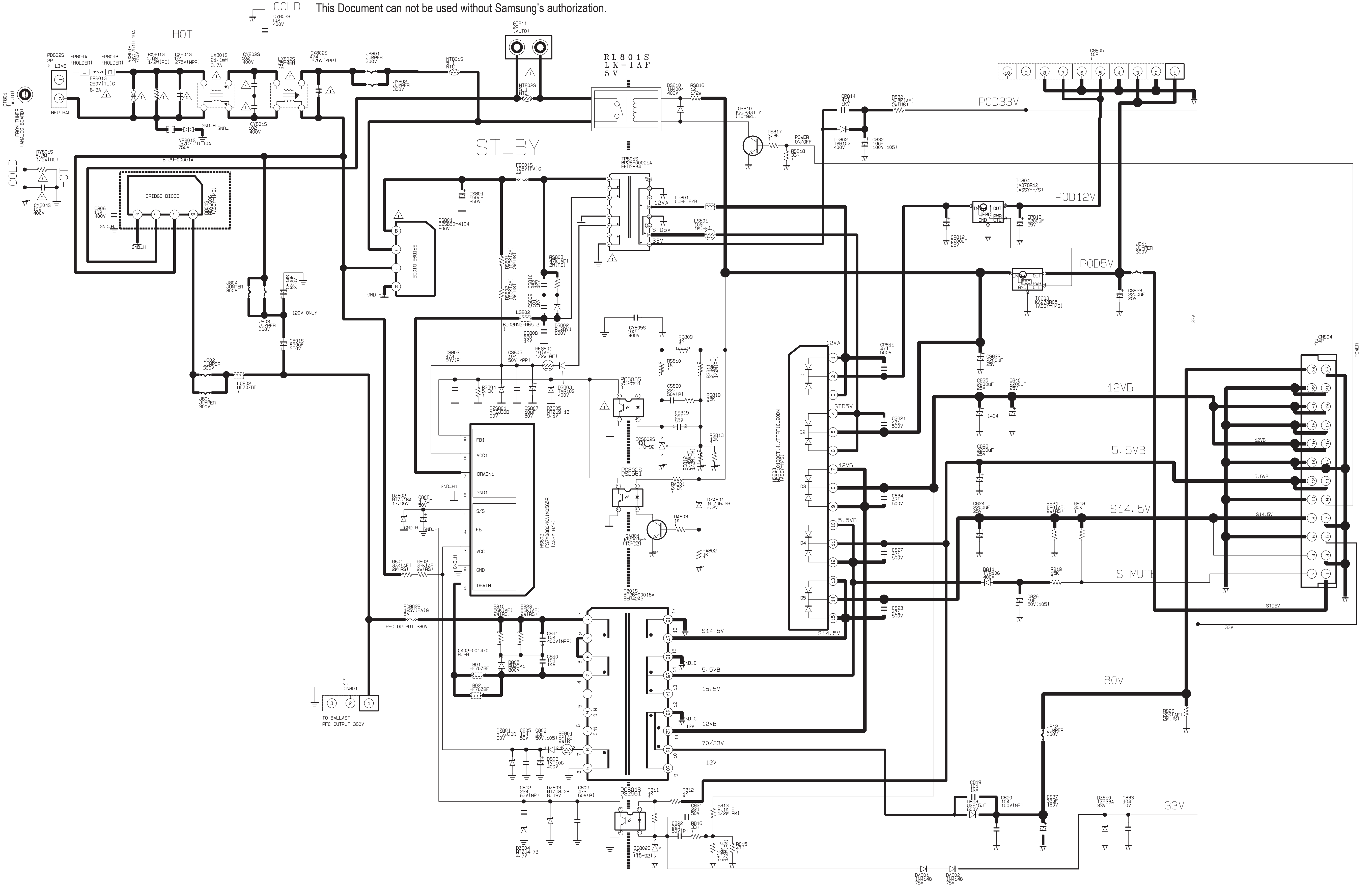
COLD
HOT
COLD
HOT
ST_BY
RL801S
LK-1AF
5V
BRIDGE DIODE
BRIDGE DIODE
120V ONLY
POD33V
POD12V
POD5V
12VB
5.5VB
S14.5V
S-MUTE
80V
33V
12VA
STD5V
33V
S14.5V
5.5VB
15.5V
12VB
70/33V
-12V
FB1
VCC1
DRAIN1
GND1
S/S
FB
VCC
GND
DRAIN
TO BALLAST
PFC OUTPUT 380V
PFC OUTPUT 380V
FROM TUNER (ANALOG BOARD)
LIVE
NEUTRAL
POWER ON/OFF
POWER
CN804
CN805
CN801
STD5V

10-5 Detect

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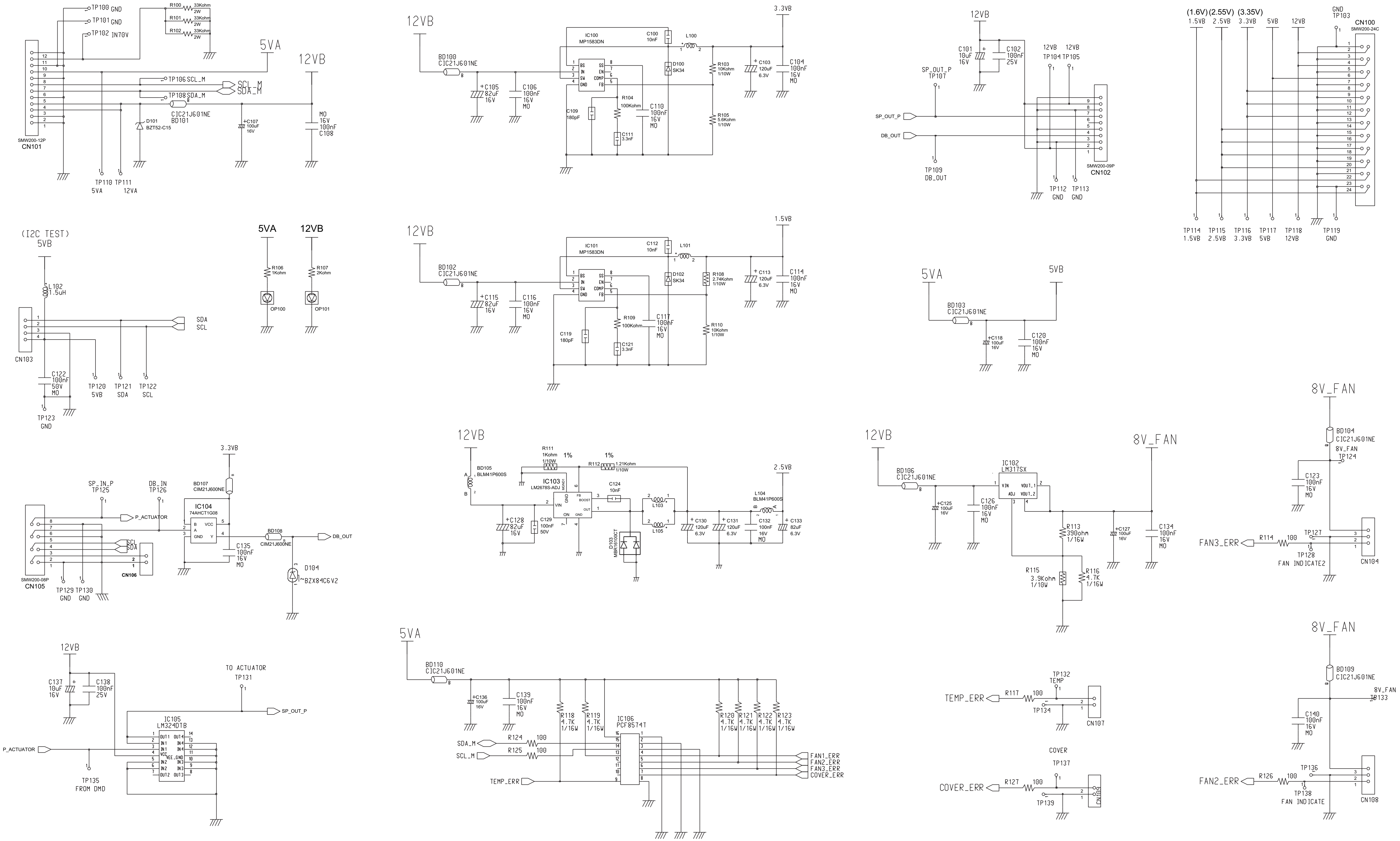
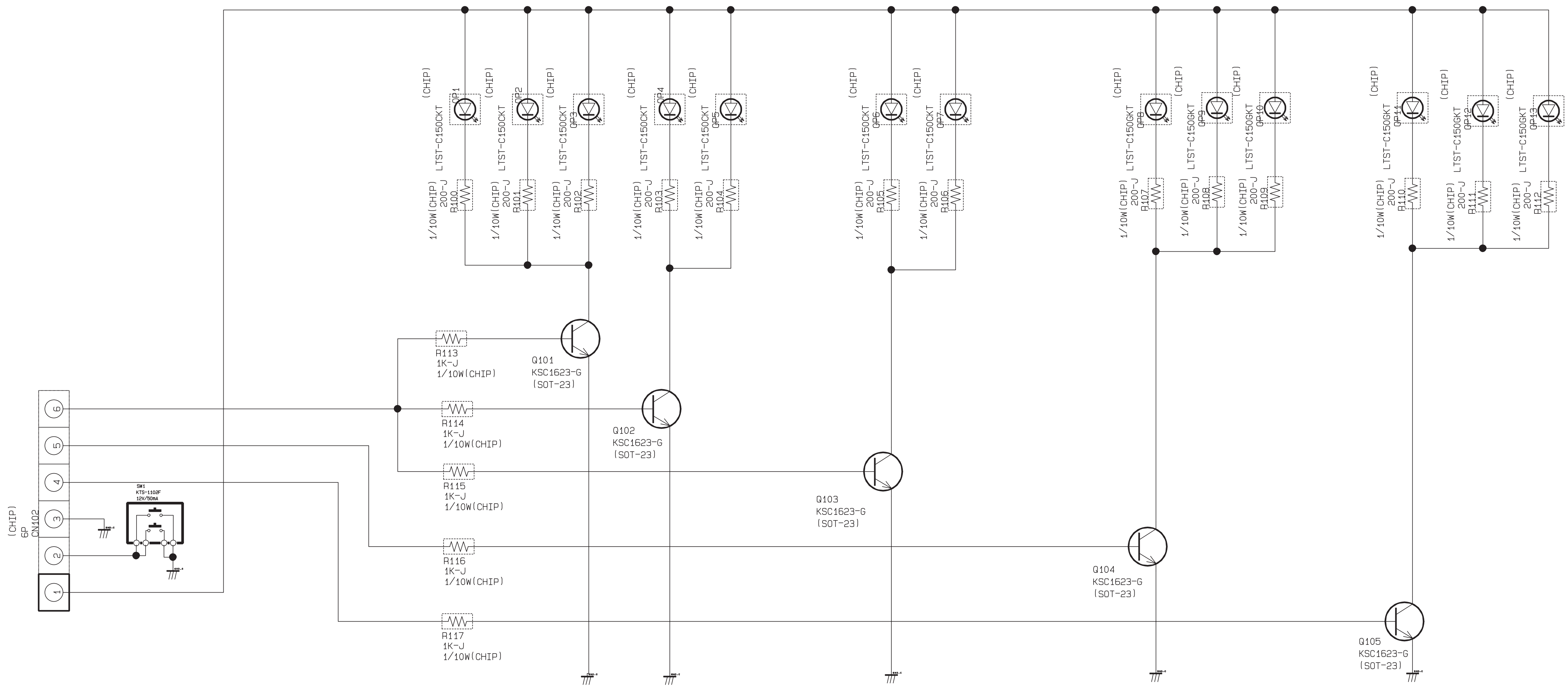

CN101
SMW200-12P
TP100 GND
TP101 GND
TP102 IN70V
R100 33Kohm 2W
R101 33Kohm 2W
R102 33Kohm 2W
5VA
12VB
TP106 SCL_M
TP108 SDA_M
SCL_M
SDA_M
CIC21J601NE
BD101
D101 BZT52-C15
C107 100uF 16V
C108 100nF 16V MO
TP110 5VA
TP111 12VA
12VB
BD100 CIC21J601NE
C105 82uF 16V
C106 100nF 16V MO
IC100 MP1583DN
C100 10nF
L100
3.3VB
D100 SK34
R103 10Kohm 1/10W
C103 120uF 6.3V
C104 100nF 16V MO
R104 100Kohm
C110 100nF 16V MO
C109 180pF
C111 3.3nF
R105 5.6Kohm 1/10W
BS SS IN EN SW COMP GND FB
12VB
BD102 CIC21J601NE
C115 82uF 16V
C116 100nF 16V MO
IC101 MP1583DN
C112 10nF
L101
1.5VB
D102 SK34
R108 2.74Kohm 1/10W
C113 120uF 6.3V
C114 100nF 16V MO
R109 100Kohm
C117 100nF 16V MO
C119 180pF
C121 3.3nF
R110 10Kohm 1/10W
12VB
C101 10uF 16V
C102 100nF 25V
12VB TP104
12VB TP105
SP_OUT_P TP107
SP_OUT_P
DB_OUT
TP109 DB_OUT
CN102 SMW200-09P
TP112 GND
TP113 GND
(1.6V) (2.55V) (3.35V)
1.5VB 2.5VB 3.3VB 5VB 12VB
GND TP103
CN100 SMW200-24C
TP114 1.5VB
TP115 2.5VB
TP116 3.3VB
TP117 5VB
TP118 12VB
TP119 GND
(I2C TEST)
5VB
L102 1.5uH
CN103
SDA
SCL
C122 100nF 50V MO
TP120 5VB
TP121 SDA
TP122 SCL
TP123 GND
5VA
12VB
R106 1Kohm
R107 2Kohm
OP100
OP101
5VA
5VB
BD103 CIC21J601NE
C118 100uF 16V
C120 100nF 16V MO
8V_FAN
BD104 CIC21J601NE
8V_FAN TP124
C123 100nF 16V MO
FAN3_ERR
R114 100
TP127
TP128 FAN INDICATE2
CN104
3.3VB
SP_IN_P TP125
DB_IN TP126
BD107 CIM21J600NE
IC104 74AHCT1G08
P_ACTUATOR
SCL
SDA
CN106
BD108 CIM21J600NE
DB_OUT
C135 100nF 16V MO
D104 BZX84C6V2
CN105 SMW200-08P
TP129 GND
TP130 GND
12VB
BD105 BLM41P600S
R111 1Kohm 1/10W
1%
R112 1.21Kohm 1/10W
1%
IC103 LM2678S-ADJ
C124 10nF
L103
L105
2.5VB
L104 BLM41P600S
C128 82uF 16V
C129 100nF 50V
D103 MBR1510CT
C130 120uF 6.3V
C131 120uF 6.3V
C132 100nF 16V MO
C133 82uF 6.3V
12VB
BD106 CIC21J601NE
IC102 LM317SX
VIN VOUT_1 ADJ VOUT_2
8V_FAN
C125 100uF 16V
C126 100nF 16V MO
R113 390ohm 1/16W
C127 100uF 16V
C134 100nF 16V MO
R115 3.9Kohm 1/10W
R116 4.7K 1/16W
12VB
C137 10uF 16V
C138 100nF 25V
TO ACTUATOR TP131
SP_OUT_P
IC105 LM324DTB
P_ACTUATOR
TP135 FROM DMD
5VA
BD110 CIC21J601NE
C136 100uF 16V
C139 100nF 16V MO
R118 4.7K 1/16W
R119 4.7K 1/16W
IC106 PCF8574T
R120 4.7K 1/16W
R121 4.7K 1/16W
R122 4.7K 1/16W
R123 4.7K 1/16W
SDA_M
SCL_M
R124 100
R125 100
TEMP_ERR
FAN1_ERR
FAN2_ERR
FAN3_ERR
COVER_ERR
TP132 TEMP
TEMP_ERR
R117 100
TP134
CN107
COVER
TP137
COVER_ERR
R127 100
TP139
CN109
8V_FAN
BD109 CIC21J601NE
8V_FAN TP133
C140 100nF 16V MO
FAN2_ERR
R126 100
TP136
TP138 FAN INDICATE
CN108

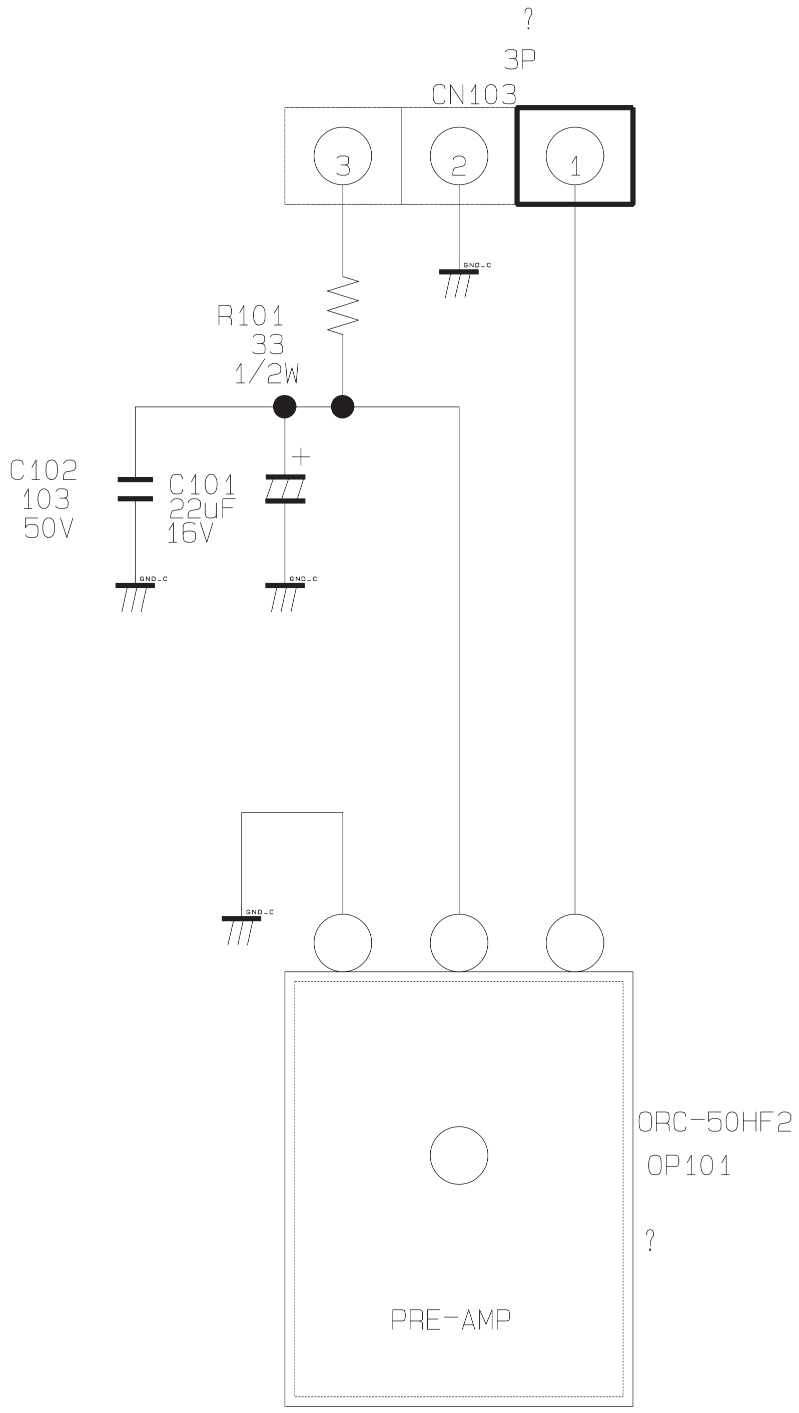
10-6 Power LED

This Document can not be used without Samsung's authorization.


(CHIP)
LTST-C150CKT
OP1
OP2
OP3
OP4
OP5
OP6
OP7
LTST-C150GKT
OP8
OP9
OP10
OP11
OP12
OP13
1/10W(CHIP)
200-J
R100
R101
R102
R103
R104
R105
R106
R107
R108
R109
R110
R111
R112
R113
1K-J
1/10W(CHIP)
R114
R115
R116
R117
Q101
KSC1623-G
(SOT-23)
Q102
Q103
Q104
Q105
SW1
KTS-1102F
12V/50mA
GND_C
CN102
6P
(CHIP)
1
2
3
4
5
6

10-7 RMC

This Document can not be used without Samsung's authorization.

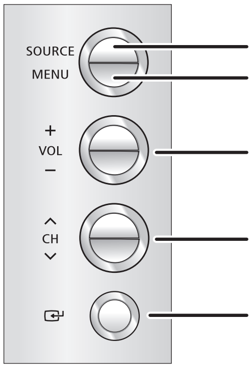

?
3P
CN103
3
2
1
GND_C
R101
33
1/2W
C102
103
50V
C101
22uF
16V
+
GND_C
GND_C
GND_C
ORC-50HF2
OP101
?
PRE-AMP

11. Operation Instruction & Installation

11-1 Product Features and Functions

11-1-1 Right side buttons

The buttons on the right side panel control your TV's basic features, including the on-screen menu system.
To use the more advanced features, you must use the remote control.



Press to switch between viewing TV programs and signals from connected components.
Press to see the on-screen menu.

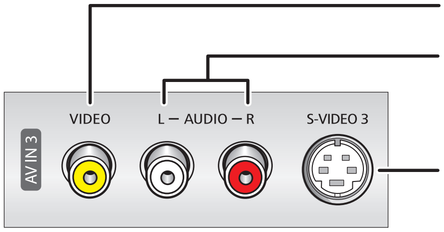
Press to raise or lower the volume and to select items when using the on-screen menu.

Press to change channels and move between items on the on-screen menu.

Press to activate (or change) a particular item.

11-1-2 Side Panel Jacks

Use the right side panel jacks to connect a component that is used only occasionally (a camcorder or video game, for example).



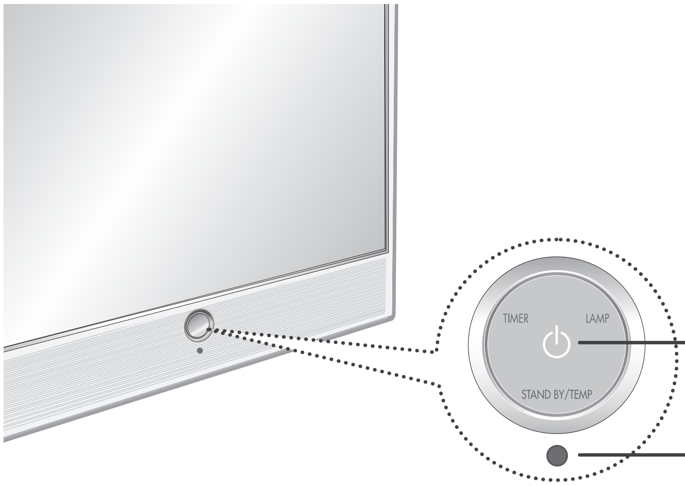
Connect the video signal from a camcorder or video game.

Connect the audio signal from a camcorder or video game.

Connect an S-Video signal from a camcorder or video game.
(S-Video 3 jack and Audio L/R input 3 are used in conjunction.)

11-1-3 Front Panel LED Indicators

The three lights on the front panel indicate the status of your TV.



POWER
Press to turn the TV on and off.

Remote Control Sensor
Aim the remote control towards this spot on the TV.

Indicator Light Key

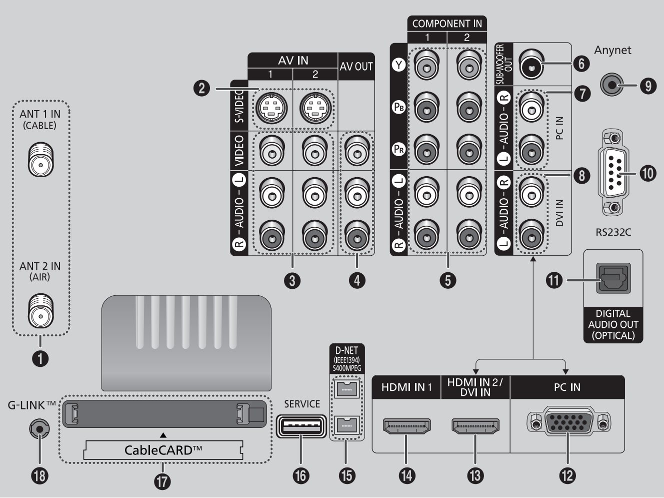
● : Light is On
◑ : Light is Blinking
○ : Light is Off

TIMER	LAMP	STAND BY/TEMP	Indication
○	○	●	Standby state.
○	◑	○	The picture will automatically appear in about 15 seconds.
●	◑	○	Auto Timer ON/OFF has been set and the set will automatically be turned on in about 25 seconds.
◑	○	◑	A cooling fan inside the set is not operating normally.
○	◑	◑	Lamp cover on the rear of the set is not properly shut.
○	○	◑	Check if the ventilation hole on the rear of the set is blocked, because if the inner temperature is too high, the power will shut off.
◑	◑	◑	Lamp may be defective.

- It takes about 30 seconds for the TV to warm up, so normal brightness may not appear immediately.
- The TV has a fan to keep the inside lamp from overheating. You'll occasionally hear it working.

11-1-4 Rear Panel Jacks

Use the rear panel jacks to connect components such as a VCR. You can connect different components such as VCRs, Set-Top Box and a DVD player etc., because there are two sets of video input jacks and two sets of component video input jacks on the rear panel of your TV. For more information, see "Connections".



1 ANTENNA terminals
Two independent cables or antennas can be connected to these terminals. Use “ANT 1 IN (CABLE)” and “ANT 2 IN (AIR)” terminals to receive a signal from VHF/UHF antennas or your cable system.

2 S-VIDEO INPUT jacks
Connects an S-Video signal from an S-VHS VCR or DVD player.

3 VIDEO/AUDIO INPUT jacks
Connect video/audio signals from external sources, such as VCR or DVD players.

4 VIDEO/AUDIO OUTPUT jacks
Sends video/audio signals from the TV to an external source, such as a VCR. These jacks are available only in RF, Video and S-Video modes.

5 COMPONENT1, 2 jacks (Y, PB, PR, AUDIO L/R)
Use these jacks to connect the component video/audio signals from a DVD player or a Set-Top Box.

6 SUB-WOOFER OUT jack
Connect to an active SUB-WOOFER.

7 PC AUDIO INPUT jacks
Connect these to the audio output jacks on your PC.

8 HDMI 2/DVI IN (AUDIO L/R)
Connect to the DVI audio output jack of an external device.

9 Anynet
Please refer to the Anynet Owner’s Instruction. This jack is for connecting to other Samsung Anynet-enabled devices.

10 RS232C
Connect to a computer for reading and loading data information.

11 DIGITAL AUDIO OUT (OPTICAL) jack
Connect to a Digital Audio Component.

12 PC VIDEO INPUT jack
Connect these to the video output jack on your PC.

13 HDMI (High Definition Multimedia Interface)/
DVI INPUT jack (HDMI IN 2/DVI IN)
Connect to the HDMI jack of a device with HDMI output.
These inputs can also be used as a DVI connection with separate analog audio inputs. An optional HDMI/DVI cable will be necessary to make this connection. When using the optional HDMI/DVI adapter, the DVI analog audio inputs on your TV allow you to receive left and right audio from your DVI device. (Not compatible with PC)

14 HDMI (High Definition Multimedia Interface)
INPUT jacks (HDMI IN 1)
Connect to the HDMI jack of a device with HDMI output.
(Not compatible with PC)

15 D-Net (IEEE1394) S400 MPEG
Connect to external IEEE1394 digital products such as digital VCRs and camcorders. Two jacks are provided for this purpose, which allow for a high degree of flexibility for connecting your D-Net controlled system.

16 SERVICE
This jack is for software upgrades.

17 CableCARD ™
Insert the CableCARD into the slot.

18 G-LINK™
Connect the IR controller cable to the G-LINK™ terminal on your TV.

11-1-5 Remote Control

You can use the remote control up to about 23 feet from the TV. When using the remote control, always point it directly at the TV. You can also use your remote control to operate your VCR, Cable box, DVD player or Samsung Set-Top Box.

1. POWER
   Turns the TV on and off.

2. TV Guide
   Press to display the TV Guide On Screen™ Interactive Program Guide (IPG). (Refer to TV Guide On Screen™ manual.)

3. ANTENNA
   Press to select "AIR" or "CABLE".

4. CHANNEL NUMBER
   Press to directly tune to a particular channel.

5. -
   Press to select additional channels (digital and analog) being broadcast by the same station. For example, to select channel "54-3", press "54", then press "-" and "3".

6. VOL +, VOL -
   Press to increase or decrease the volume.

7. MUTE
   Press to mute the TV sound.

8. Anynet
   Runs the Anynet view functions and sets up Anynet devices.

9. MENU
   Displays the main on-screen menu.

10. CH.LIST
    Displays the channel list.

11. FAV.CH (Favorite Channel)
    Press to switch between your favorite channels.

12. MODE
    Selects a target device to be controlled by the Samsung remote control (i.e., TV, STB, VCR, CABLE, or DVD).

13. PRE-CH
    Tunes to the previous channel.

14. SOURCE
    Press to display all of the available video sources (i.e., TV, Set-Top Box, VCR, DVD, DTV, PC).

15. CH/PAGE ∧ / ∨
    Press to change channels. Moves from one set of screen information to the next in the TV Guide On Screen™.

16. INFO
    Press to display information on the TV screen.

17. EXIT
    Press to exit the menu.

18. ▲, ▼, ◀, ▶, ENTER
    Press to select highlight up, down, left, or right. While using the on-screen menus, press the ENTER to activate (or change) a particular item.

19. D-Net
    Runs the D-Net view function.

20. PIP (Picture In Picture)
    Displays the available channels in sequence. (These buttons change channels in the PIP window only.)
    PIP : When in the TV Guide On Screen, toggles the state between locked and unlocked in the Video Window.

21. STILL
    Press to pause the current screen.

22. P.SIZE
    Press to change the screen size.

23. REC
    Records a program in the TV Guide On Screen™.

24. DNIe (Digital Natural Image engine)
    Activates DNIe Demo mode.

25. SET
    Used during set up of this remote control, so that it will work compatibly with other devices (Set-Top box, VCR, Cable box, DVD, etc.)

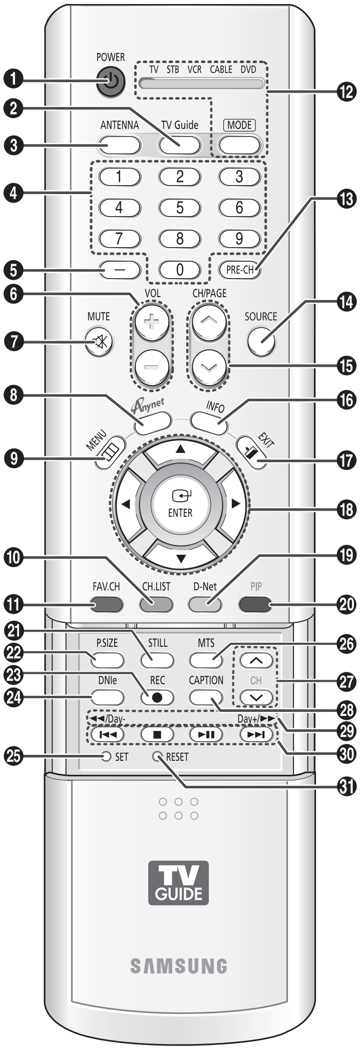
26. MTS (Multichannel Television Stereo)
    Press to choose Stereo, Mono or SAP (Secondary Audio Program).

27. PIP Controls
    CH ∧ / ∨; Press to displays the available channels in sequence. (These buttons change channels in the PIP window only.)

28. CAPTION
    Controls the caption decoder.

29. ◀◀/Day-, Day+/▶▶
    Moves forward or backwards in 24 hour increments in the Listings Grid in TV Guide On Screen™.

30. VCR/DVD Controls
    Controls VCR or DVD functions: Rewind, Stop, Play/Pause, Fast Forward.



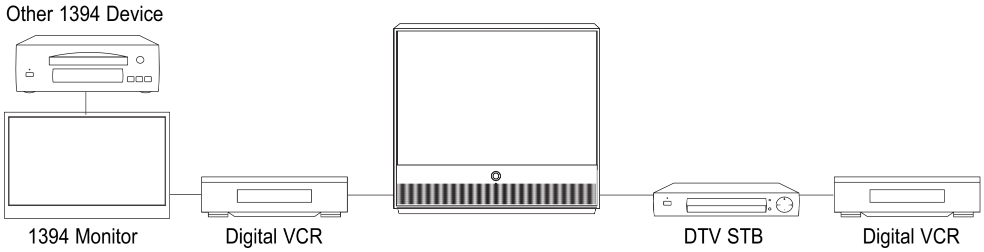
31. RESET
    If your remote control is not functioning properly, take out the batteries and press the reset button for about 2~3 seconds. Re-insert the batteries and try using the remote control again.

11-2 New Features

11-2-1 D-Net(IEEE1394)

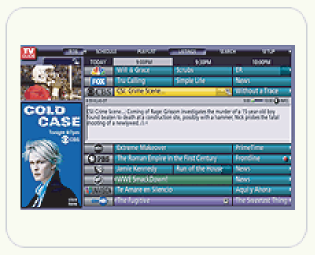
D-Net(IEEE1394) is a cross-platform implementation of the high-speed serial data bus -- defined by the IEEE 1394-1995, IEEE 1394a-2000, and IEEE 1394b standards -- that can move large amounts of data between computers and peripheral devices. It features simplified cabling, hot swapping, and transfer speeds of up to 3.2 gigabits per second (on machines that support 1394b).

Major manufacturers of multimedia devices have been adopting the D-Net(IEEE1394) technology.
D-Net(IEEE1394) speeds up the movement of multimedia data and large files and enables easy connection of digital consumer products -- including, digital video tapes, digital video disks, set-top boxes.



■ Key Features
- Real Time Audio/Video Transmission(MPEG-2, …)
- High speed Data Transmission
  - • 1394 upto 400Mbps
  - • 1394.b upto 3.2 Gbps
- Hot Plug & Play
- AVC, CMP, EIA775, CEA931, 5C, …
- Variety of Compatible devices :DTV, STB, DVHS, AVHDD, MPEG Camcorder, …
- Copy protection

11-2-2 TV Guide On Screen


TV GUIDE
TODAY
9:00PM
9:30PM
10:00PM
Will & Grace
Scrubs
ER
FOX
Tru Calling
Simple Life
News
CBS
CSI: Crime Scene...
Without a Trace
COLD CASE
Extreme Makeover
PrimeTime
PBS
The Roman Empire in the First Century
Frontline
Jamie Kennedy
Run of the House
News
WWE SmackDown!
News
Te Amaré en Silencio
Aquí y Ahora
The Fugitive
The Sweetest Thing

TV Guide On Screen is an interactive program guide that is built directly into consumer electronics products, including DLP, plasma and LCD televisions, personal video recorders and recordable DVD players.
The guide offers interactive on-screen program listings that enable viewers to quickly and easily navigate, sort, select, and schedule television programming for viewing and recording, all with simple remote control commands.
TV Guide On Screen's patented technology delivers continuously updated program listings to users, regardless of whether they receive their television signal via cable or over-the-air broadcast. TV Guide On Screen works by simply plugging in the television or recording device and activating the guide through an express set-up process.
The guide requires no subscription or special connection and is available at no cost to the consumer.

■ Key Features

- Listings Service:
  Displays eight days of viewers' local program listings and descriptions for broadcast and cable;
  Viewers can tune to any program, schedule a program to record, or set a reminder, with the press of a button;
  The Video Window lets viewers monitor the last channel tuned while viewing program listings, or preview channels as they page through listings;
  Color-coded program genres help viewers quickly identify movies, sports, and children's programming.

- Search Feature:
  Viewers can search for programs by categories such as HDTV, movies, sports or children's shows. Within categories, viewers can sort by show type, such as baseball or football.
  Viewers can sort alphabetically, or by a key word such as a show title or a starring actor.

- One-touch Recording:
  To record, viewers simply highlight a program title and then press a button on the remote control. TV Guide On Screen will automatically record the program;
  Programs may be set to record one time or every time they air;
  TV Guide On Screen is a critical component of the recordable devices into which it is built. A week's worth of listings and powerful sorting and recording features make advanced recording simple

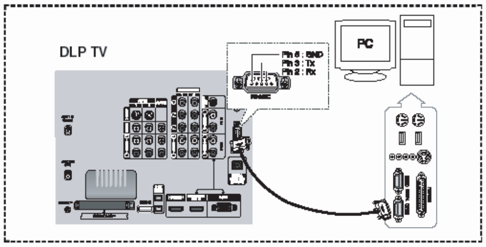
- Reminder Feature:
  Viewers may set reminders to ensure they never miss their favorite shows;
  Reminders can even be set to automatically turn on the TV when a show begins.

11-2-3 CableCARD

A small PCMCIA device, not working by itself, designed to run specialized tasks in association with a DCR TV, such as a conditional access sub system or to provide resources required by an application but not provided directly by the host.

11-2-4 RS-232C

Connect the DLP DTV using the serial port.



- Do not disconnect or connect the RS-232C cable while the Computer or the DLP TV is operating. It may cause serious damage to the Computer or the DLP TV.
- If the PC is not properly configured, the RS-232C connection may not work properly. For further details, refer to the Computer's product documentation.

Serial Port Settings (Select Standard RS232)

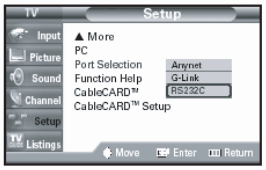
Specification	RS-232C
Bit Rate	19200 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None

DLP DTV Menu Configuration

Since Anynet, G-Link and RS232C share a serial port, you have to select RS232C from the menu for the following communication.

Menu Setting Procedures

Select **Setup → Port Selection → RS232C**



Serial Communication Protocol

Command Packet Structure [7bytes]

0x08	0x22	Cmd1	Cmd2	Cmd3	Value	CS

- A command packet consists of 7 bytes in total.
- The two bytes 0x08 and 0x22 signify that the packet is for serial communication.
- The following 4 bytes represent a pre-defined command that can be defined by the user.
- The last byte is the checksum which checks the validity of the current packet.

Header [2 Byte]: Pre-defined values fixed to 0x08 and 0x22.
Cmd1 [1 Byte]: The first value of the code defined in the command list (Hexadecimal)
Cmd2 [1 Byte]: The second value of the code defined in the command list (Hexadecimal)
Cmd3 [1 Byte]: The third value of the code defined in the command list (Hexadecimal)
Value [1 Byte]: Input parameter for the command (Default: 0) (Hexadecimal)
CS [1 Byte]: Checksum (the 2's complement of the sum of all the values except for the CS value.)

Response Packet Structure [3 Bytes]

- Success

0x03	0x0C	0xF1

- Fail

0x03	0x0C	0xFF

When the received packet from an external device has a valid value, a Success packet is sent. Otherwise, a Fail packet is sent.

A Fail packet is sent if:

- The received packet length is not equal to 7 bytes.
- The 2 byte packet header value is not equal to 0x08, 0x22.
- The check sum is incorrect.

Failure detection by an external device

An external device classifies the packet as Fail if it does not receive a Success packet within 100ms.

Communication Sequence

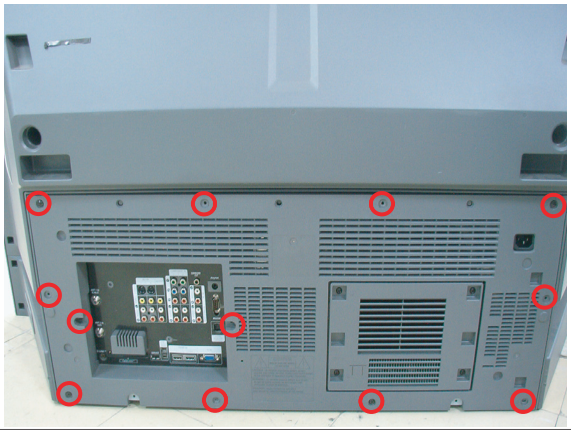
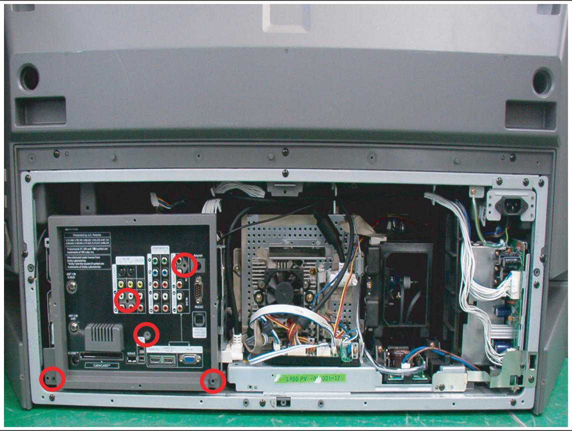
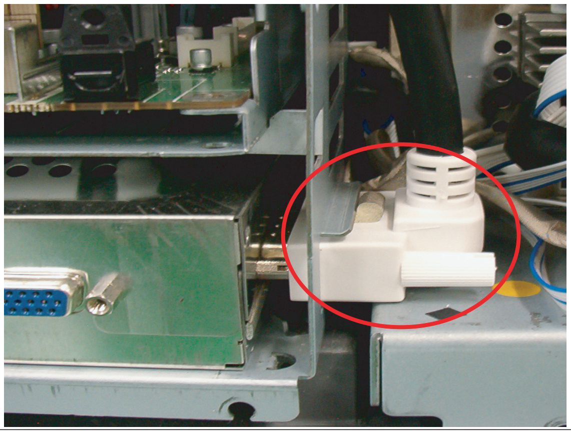
- PC
  Creates a command packet and sends it through RS232C.
- DLP DTV
  Receives a packet and parses the packet.
  Determines whether it is a success or fail, and transmits the Ack packet to the PC.
  Controls the DLP DTV with the parsed command.
- PC
  Waits for the Ack packet.
  Prepares the next command, if a Success packet arrives immediately.

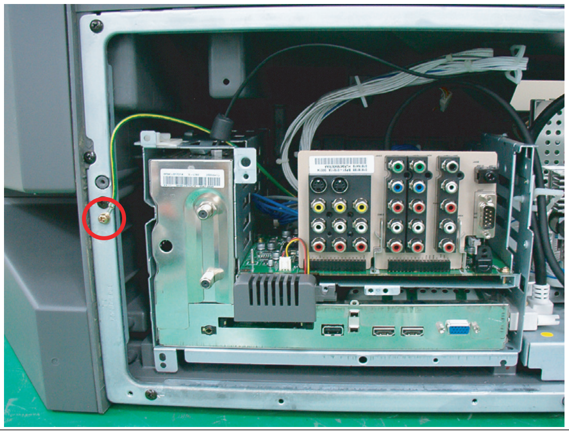
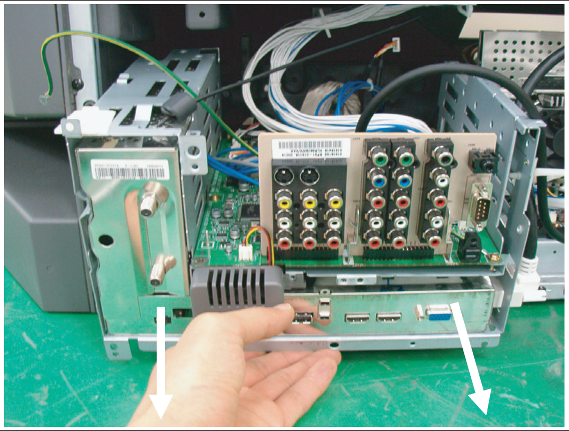
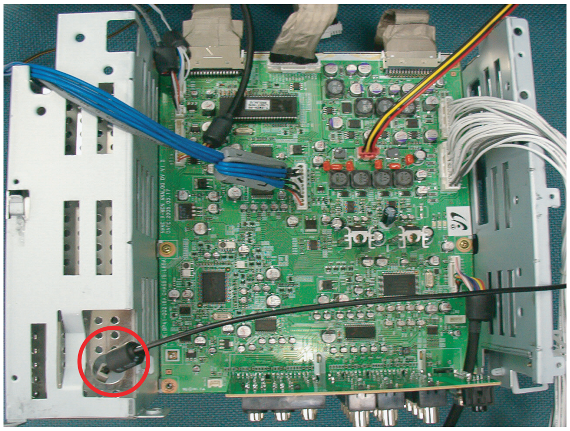
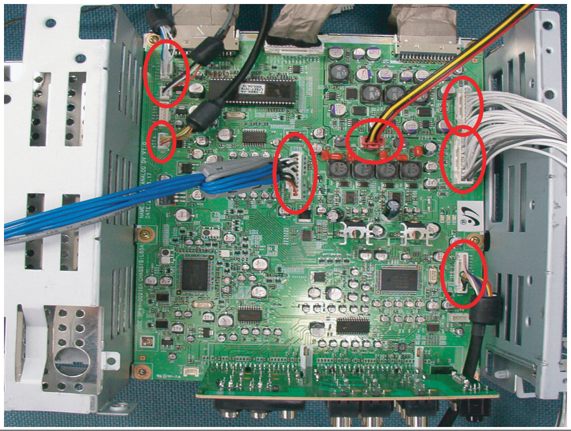
MEMO

12. Disassembly & Reassembly

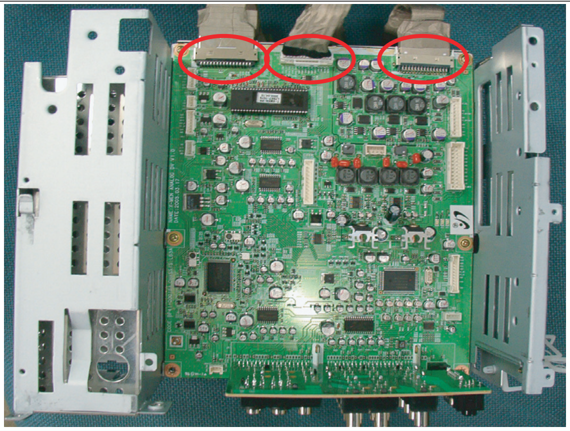
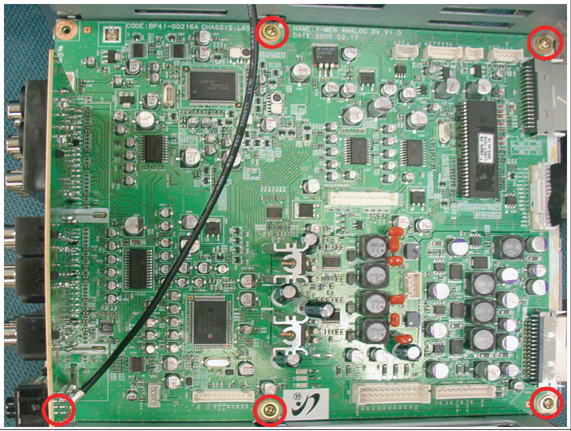
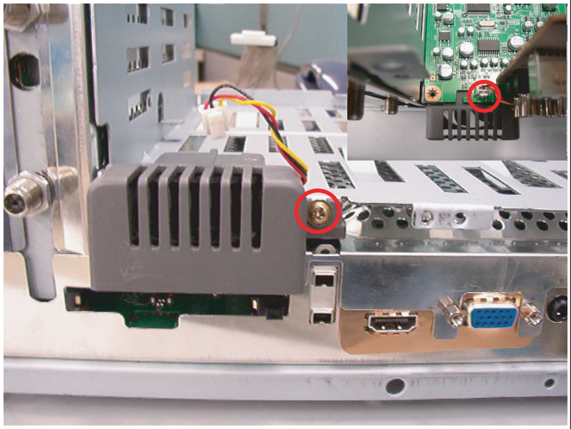
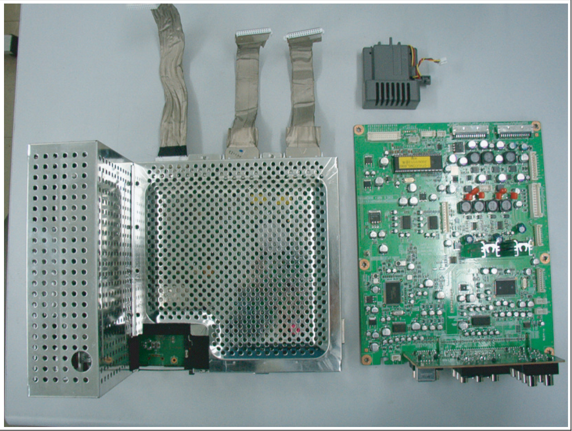
12-1 Overall Disassembly & Reassembly

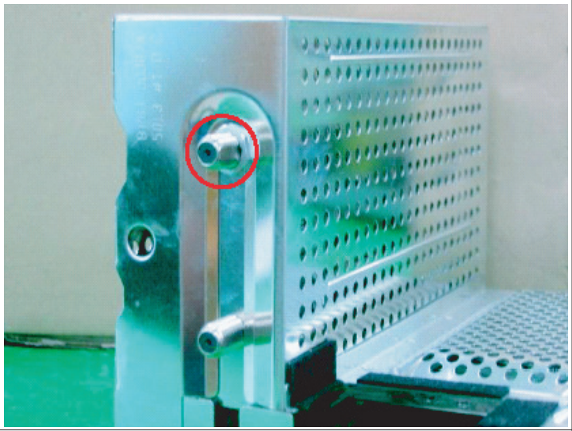
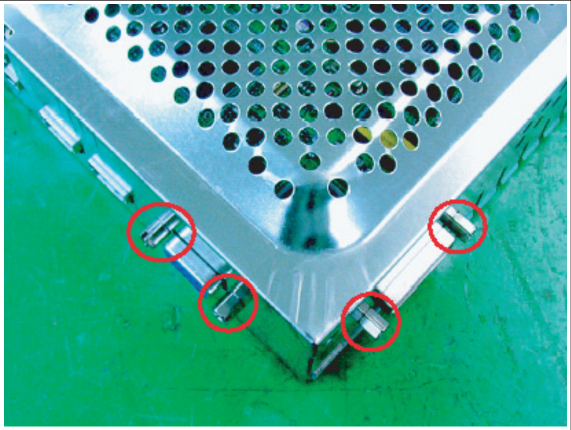
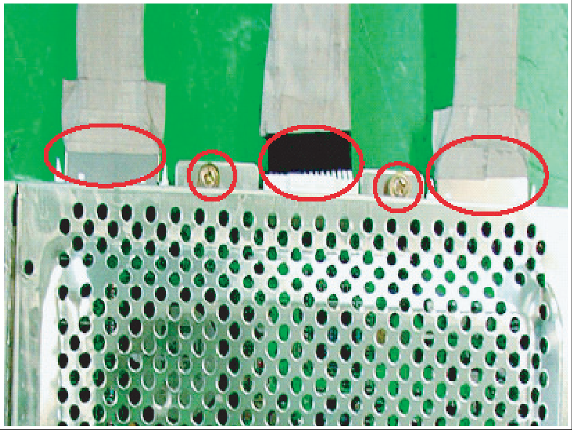
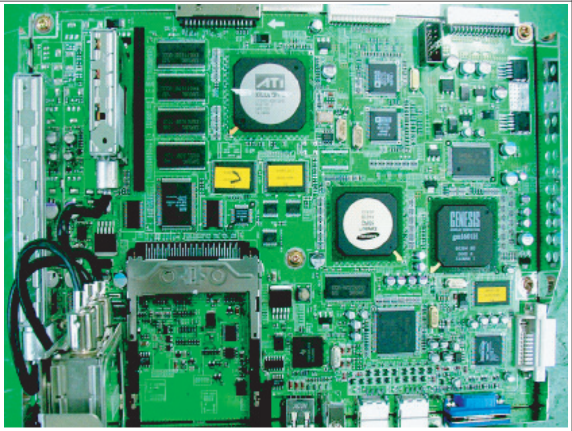
12-1-1 Separation of the back cover and the chassis

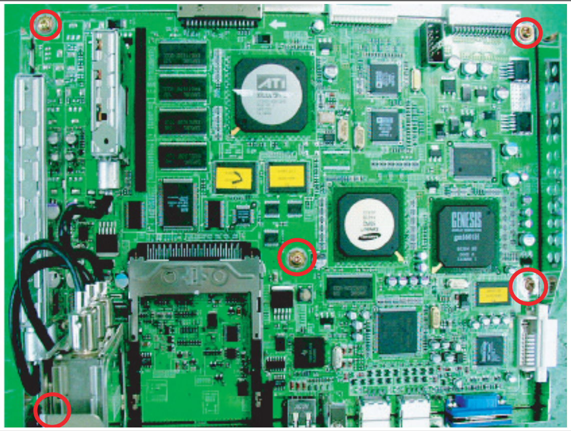
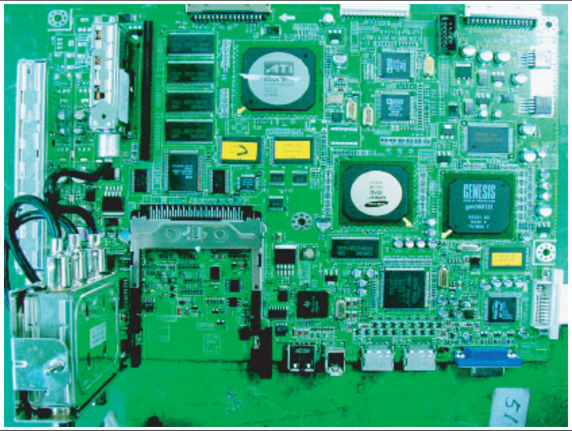
Part Name	Description	Description Photo
Back Cover	① Remove 12 screws to remove the back bottom cover. : TH,B,M4.L15,BLK,SWRCH18A	
Terminal Board	① Remove 5 screws to remove the Terminal Board. * The 3 Terminal Board Screws : TH,B,M4.L15,BLK,SWRCH18A * The 3 Jack Screws : RH,B,M4,L15,ZPC(BLK),SWRCH18	
DVI cable	① Separate the DVI cable. ⚠: The DVI screw is made of soft plastic and may easily break when applying excessive force through a screw driver. Ensure that extreme caution is taken when loosening the screw.	

Part Name	Description	Description Photo
Terminal Board	① Remove the screw. : WSP,PH,+,M4,L12,ZPC(YEL),SM10C	
Holder Chassis	① Pull out the holder Chassis.	
Analog Board	① Seperate the Gt-wires. ② Seperate the cables.	 

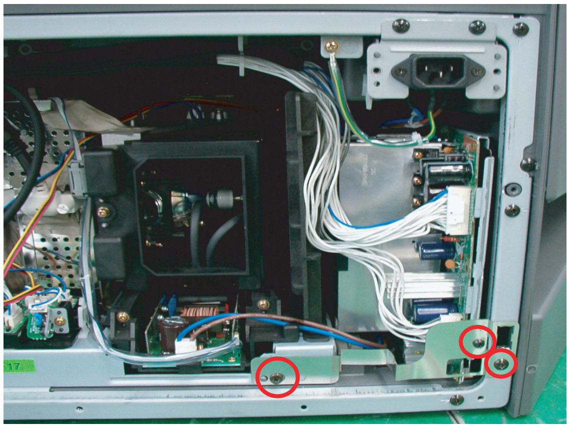
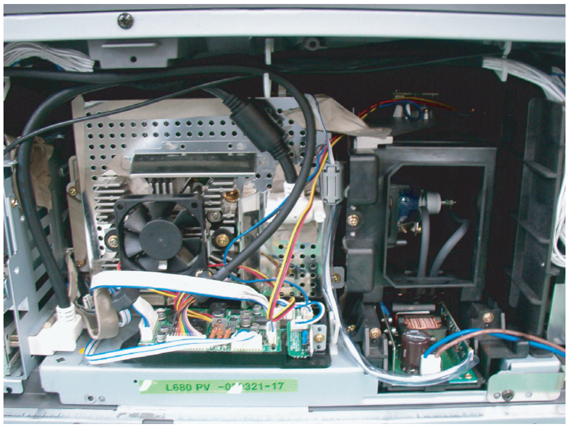
12-1-2 Separation of the Analog and Digital Board

Part Name	Description	Description Photo
Analog Board	① Seperate the cables. ⚠: The 30 pin shield cable should be removed by holding the two lock ends of the cable, as failing to do so, could damage the connector.	
	① Remove the 5 screws and separate Fan cable(CN275). Detach Analog board from Assy. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A	
Fan	① Remove both the connector and the screws before removing the fan. Then remove the fan from the holder chassis. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A	
Analog Board/ Digital Board/ Fan	① Analog, Digital Board and Fan.	

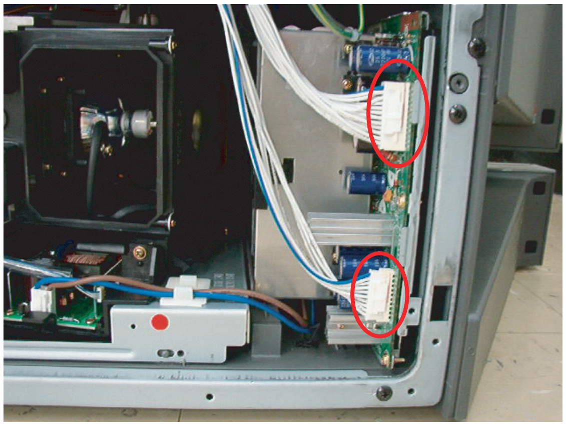
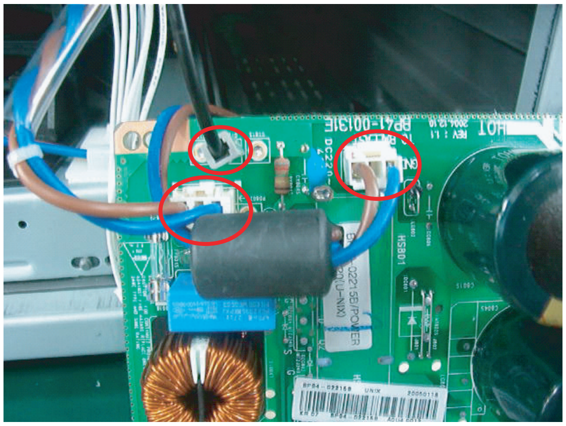
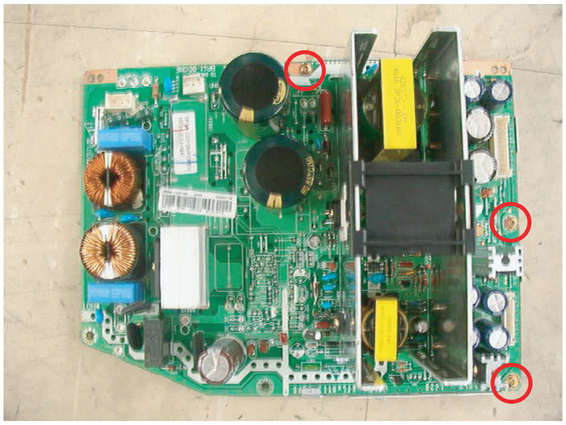
Part Name	Description	Description Photo
Digital Board	① Use the long-nosed pliers to remove the hex nut. Nut-Hexagon : -,M3/8X32,ZPC(WHT),MBSBD ⚠: The standoffs can easily break if excessive force is applied. Use extreme caution when removing and replacing.	
	① Remove 2 standoffs from the DVI connector. StandOff : M3,L5,Ni PLT,SUM24L,#4-40 ② Remove 2 standoffs from the PC connector.	
	① Remove the screws and cables. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A ⚠: The 30 pin shield cable should be removed by holding the two lock ends of the cable, as failing to do so, could damage the connector.	
	① After Removing the Top Shield Case. ⚠: Use the two lock holes on either side of the shield case when removing it.	

Part Name	Description	Description Photo
Digital Board	① Remove the screws before removing the shield case at the bottom. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A	
	① Digital Board.	

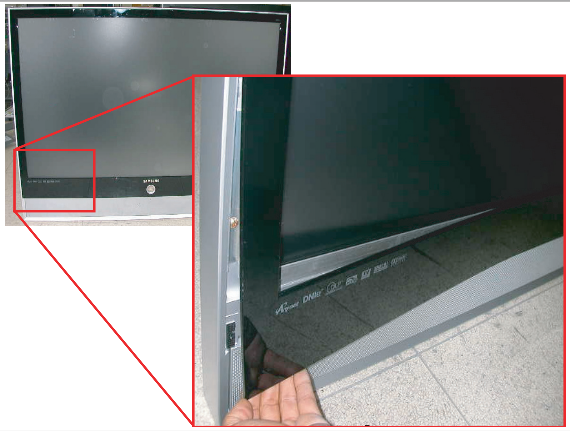
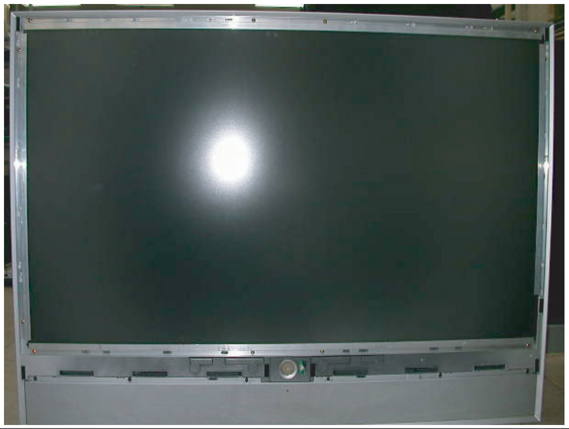
12-1-3 Separation of the optical engine

Part Name	Description	Description Photo
Optical Engine	① Remove the three screws to remove the bracket. : TH,B,M4.L15,BLK,SWRCH18A ② The connector from the Power Supply to the Ballast has to be removed before the Light Engine can be taken out of the unit.	
	① Remove the engine by pulling it out of the cabinet. ⚠: Be careful when removing the Light Engine as it may get caught up by the upper cable of the case.	

12-1-4 Separation of the Power Board

Part Name	Description	Description Photo
Power Board	① Separate the cables.	
	① Remove the power board carefully before disconnecting the cables. ⚠ Notice: Wear gloves when handling the power board as there may be some remaining electrical charge in the capacitors. Specifically, avoid touching any part of the capacitors.	
	① After removing the screws, separate the bottom power braket. : PWH,B,M3,L10,ZPC(YEL),SWRCH18A	

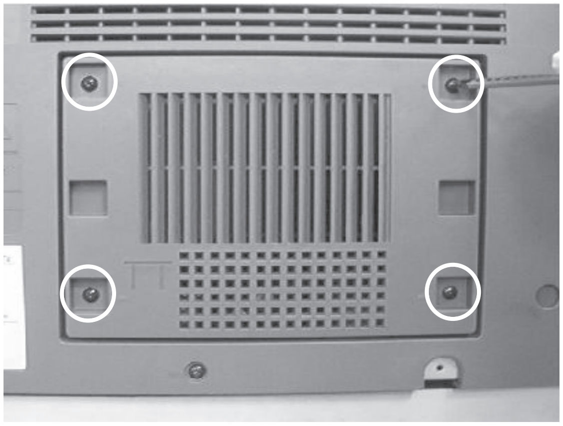
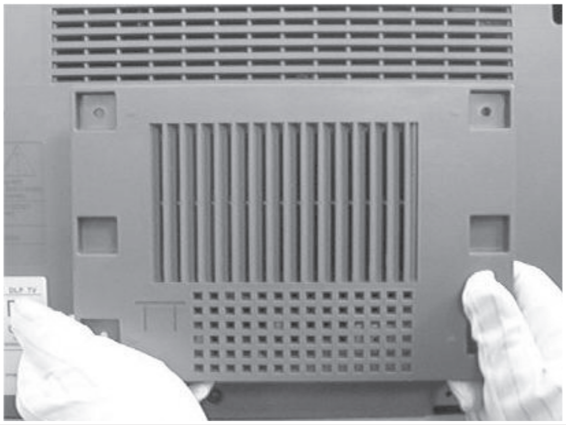
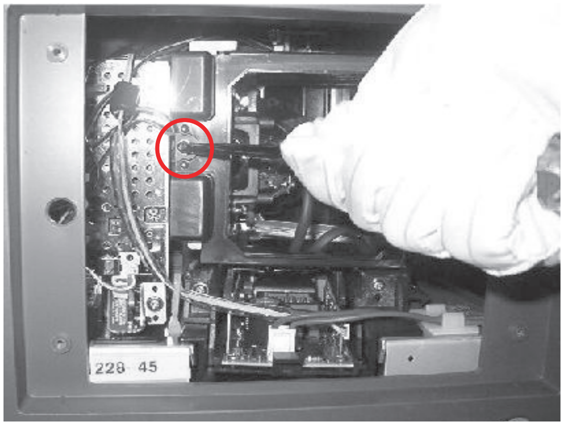
12-1-5 Screen Remove

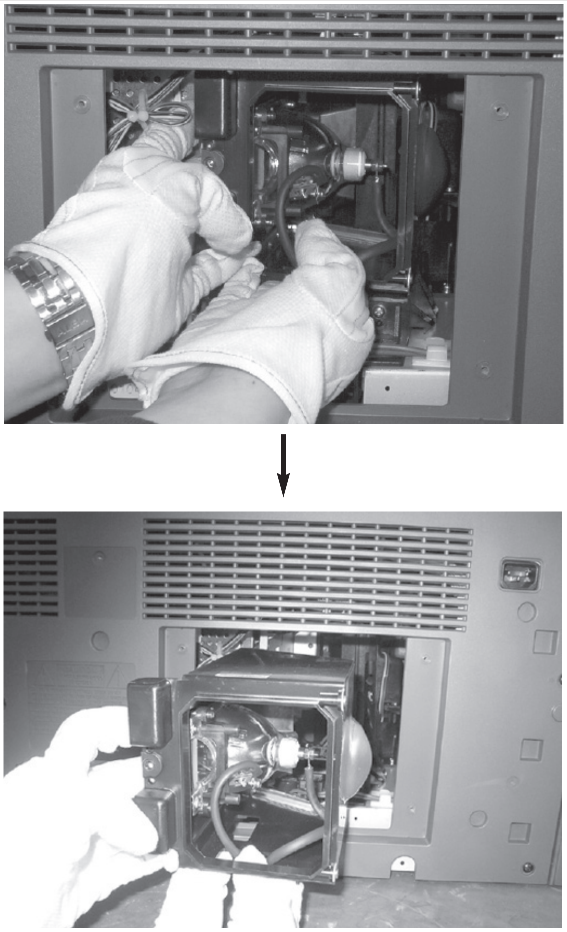
Part Name	Description	Description Photo
Cover-Front	① Cover-Front's lower department pull to fore-end and remove. ⚠ : There is no Screw conclusion place.	
	① State that Cover-Front is detached.	
Brkt-Screen,Top / Brkt-Screen, Right	① Separate Brkt-Screen,Top and Right after remove 6 screws indicating in picture. : TH M4,L12,YELLOW.	
Screen	① Separate Screen.	

12-1-6 Lamp Replacement

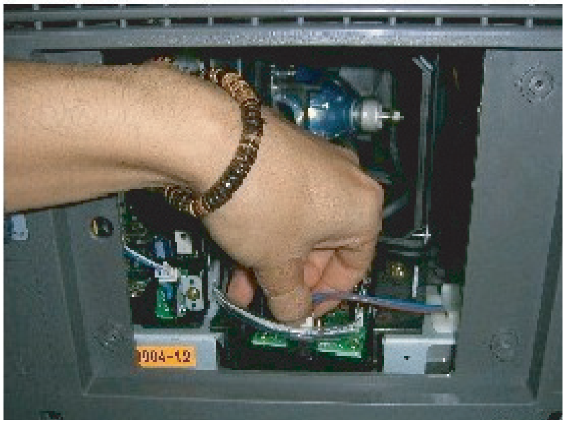
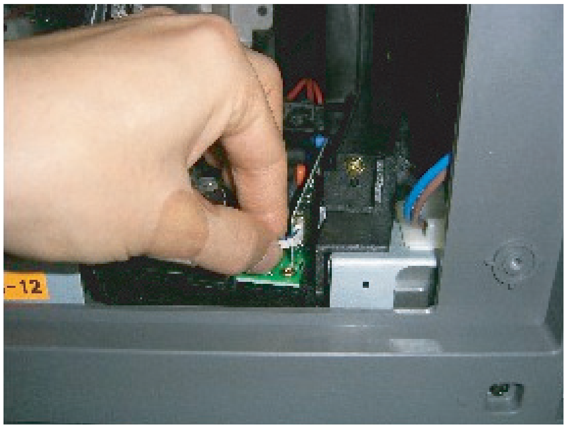
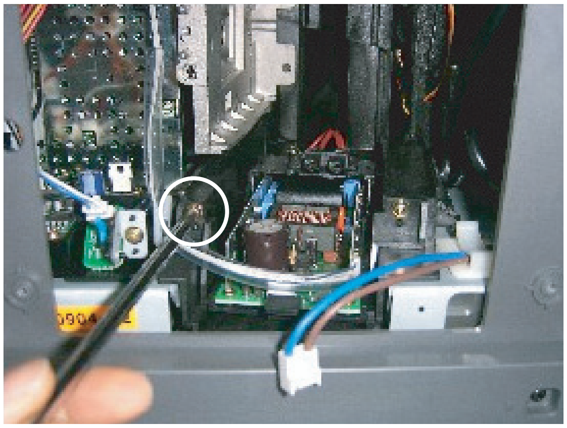
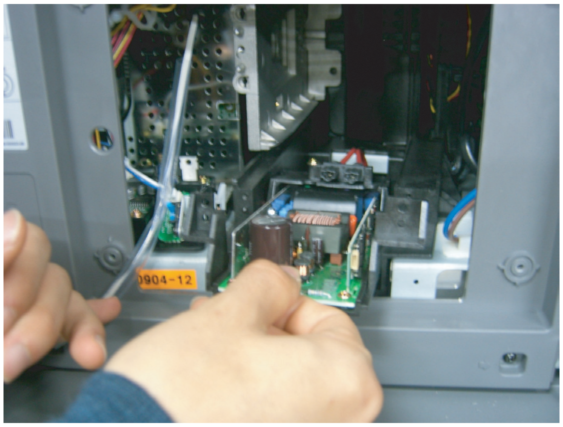
⚠ Notice

1. Replace with the correct code numbered lamp to avoid damage to the TV.
2. Turn the power off and wait for 30 minutes before replacing the lamp as it will be hot.
3. Do not touch the glass part of the lamp with your bare hands nor insert any foreign object inside the cover as it may cause poor screen quality, electric shock or fire.
4. Do not place the old lamp near flammable objects or within the reach of children.
5. Be sure to connect this TV directly to an AC wall outlet. If the TV's AC plug is connected to a cable box or other source, it will not allow for proper cool down time.

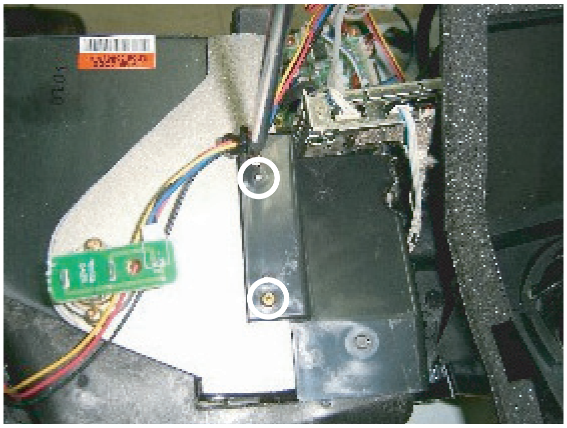
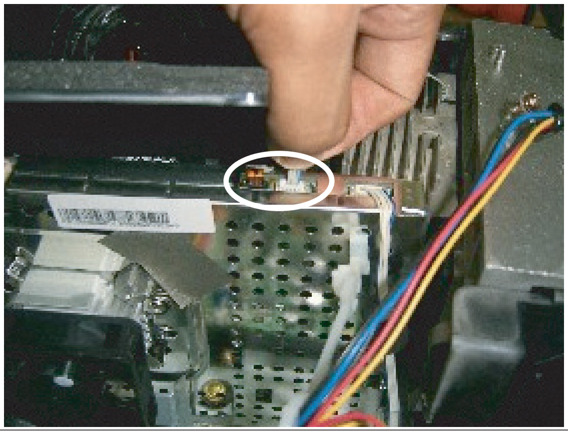
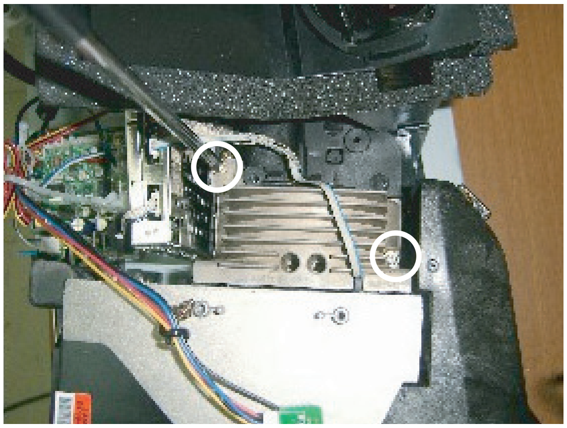
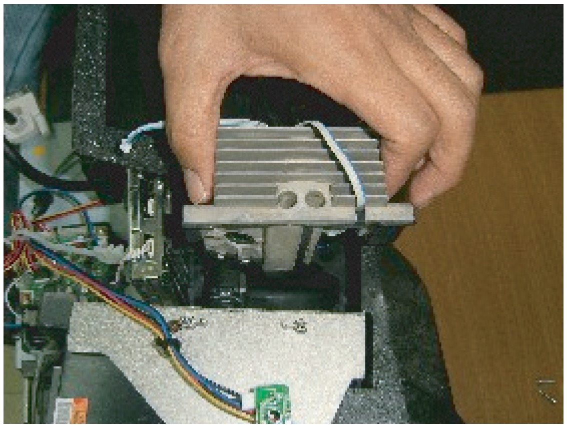
Part Name	Description	Description Photo
Lamp	① Unplug the TV, then use a screwdriver to remove the 4 screws. : WSP,PH,+,M4,L12,ZPC(YEL),SM10C	
	① Remove the Lamp cover.	
	① Loosen the screw securing the Lamp by using a screwdriver. : WSP,PH,+,M4,L12,ZPC(YEL),SM10C	

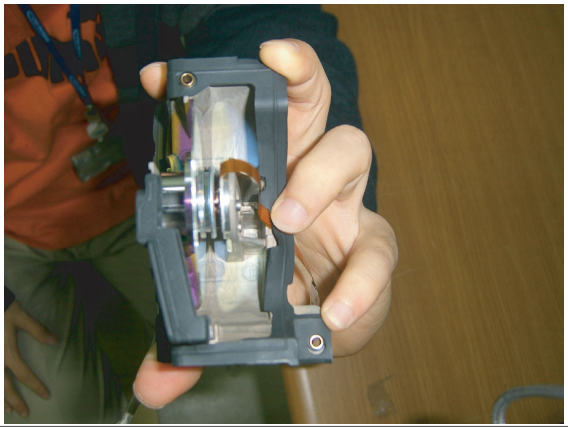
Part Name	Description	Description Photo
Lamp	① Separate the Lamp from the engine by holding the handle and pulling it out. ② To reinstall the Lamp, follow these steps in reverse order.	

12-1-7 Ballast Replacement

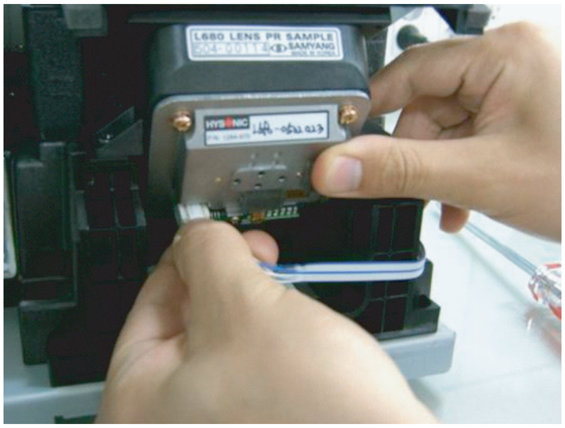
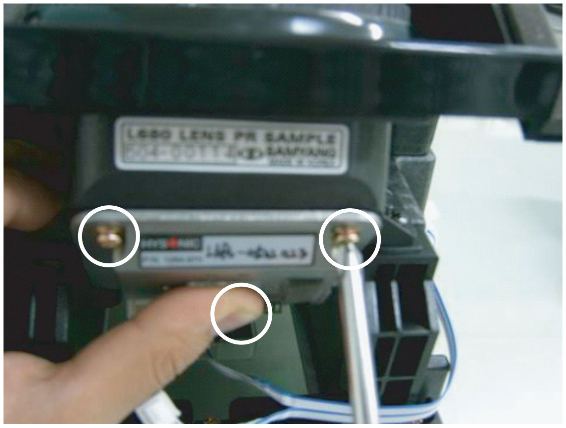
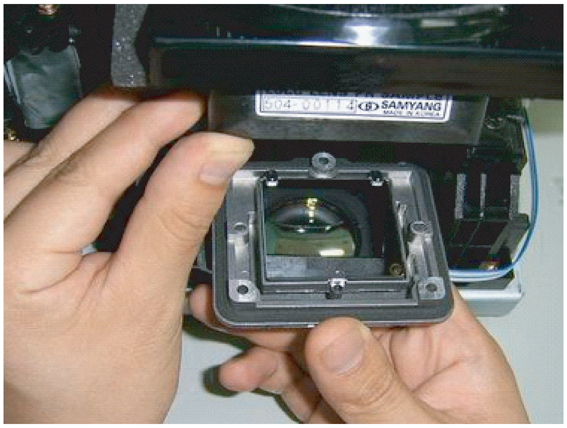
Part Name	Description	Description Photo
Ballast Board	① Remove the lamp, refering to lamp replacement.(12-8page) Remove the ballast power cable.	
	① Remove the Ballast SCI cable.	
	① Remove the two screws at the Holder Ballast. : PWH,+,B,M3,L10,ZPC(YEL),SWRCH18A,-	
	① Pull out the Ballast assembly. ② Replace it with a new one and re-assemble it in the reverse order.	

12-1-8 Color Wheel Ass'y Replacement

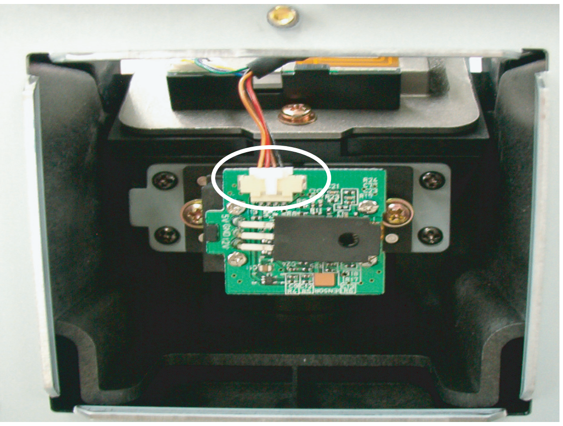
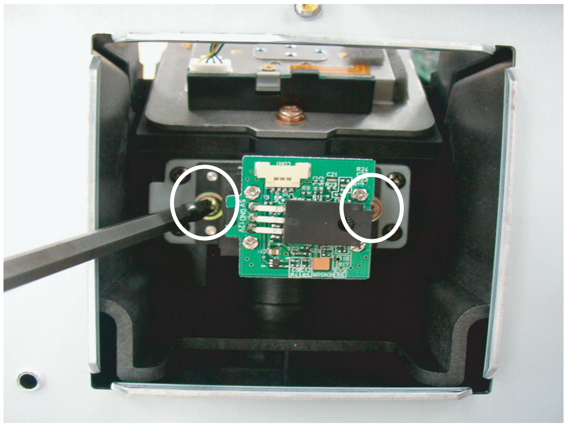
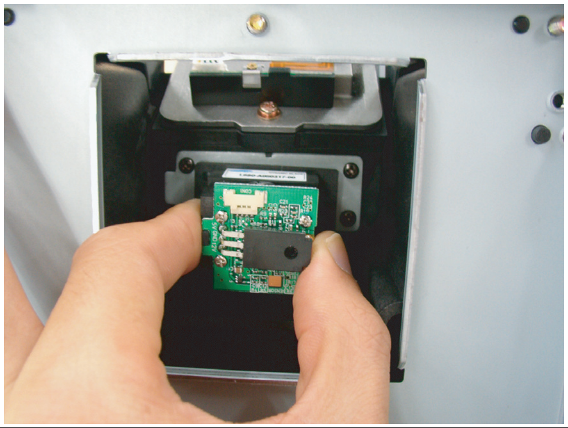
Part Name	Description	Description Photo
Color Wheel	① Remove 2 screws to remove the color wheel cover. : WSP,PH,+,M3,L8,ZPC(YEL),SW	
	① Remove two cables at the DMD Board.	
	① Remove 2 screws. : PWH,+,B,M3,L10,ZPC(YEL),SWRCH18A,-	
	① Disassemble the color wheel assembly.	

Part Name	Description	Description Photo
Color Wheel	① Replace it with a new color wheel and rubber assembly. ⚠ Notice : Never touch the color wheel. Touch only the cover assembly.	

12-1-9 Actuator(Smooth Picture) Replacement

Part Name	Description	Description Photo
Actuator	① Remove the cable at the Actuator.	
	① Remove screws(3ea) at the Actuator cover. : BH,+,M3,L16,ZPC(YEL),SWRCH	
	① Replace it with a new actuator.	

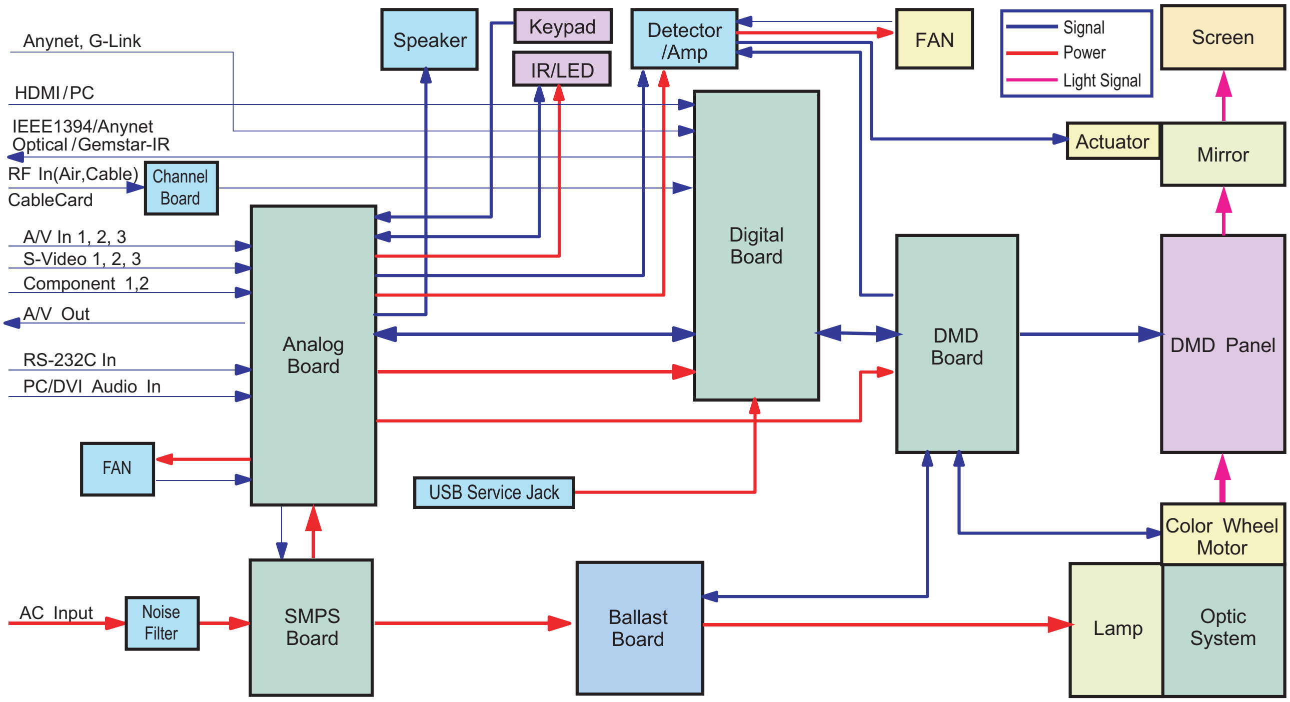
12-1-10 Dynamic Black Replacement

Part Name	Description	Description Photo
Dynamic Black	① Remove the at the cable.	
	① Remove screw(2ea). : WSP,BH,+,M3,L16,ZPC(YEL),SWRCH	
	① Disassembly Dynamic Black assembly.	
	① Replace it with new Dynamic Black assembly.	DYNAMIC BLACK L680-A050317-00

MEMO

13. Circuit Description

13-1 Overall Block Description


Anynet, G-Link
HDMI / PC
IEEE1394/Anynet
Optical / Gemstar-IR
RF In(Air,Cable)
CableCard
Channel Board
A/V In 1, 2, 3
S-Video 1, 2, 3
Component 1,2
A/V Out
RS-232C In
PC/DVI Audio In
FAN
Speaker
Keypad
IR/LED
Detector /Amp
FAN
Signal
Power
Light Signal
Screen
Actuator
Mirror
Analog Board
Digital Board
DMD Board
DMD Panel
USB Service Jack
Color Wheel Motor
AC Input
Noise Filter
SMPS Board
Ballast Board
Lamp
Optic System

The DLP TV is largely divided into: Power part, Engine part and Analog + Digital parts.
The ass'y that consists of the DMD board, Detect (Actuator) board, lamp, ballast and optical devices is called the Engine.
The analog + digital board parts receive the AV signals to output voice signals and process the remote control signals.
The engine part displays the video data on the screen, which is generated in the analog + digital boards.

The AV signals are input through the analog and digital boards. ADV7400 processes the MUX and decoding while X226 B processes the CPU functions, MPEG and I2S.
Finally, the improved DNIe image is sent to the DMD engine board.

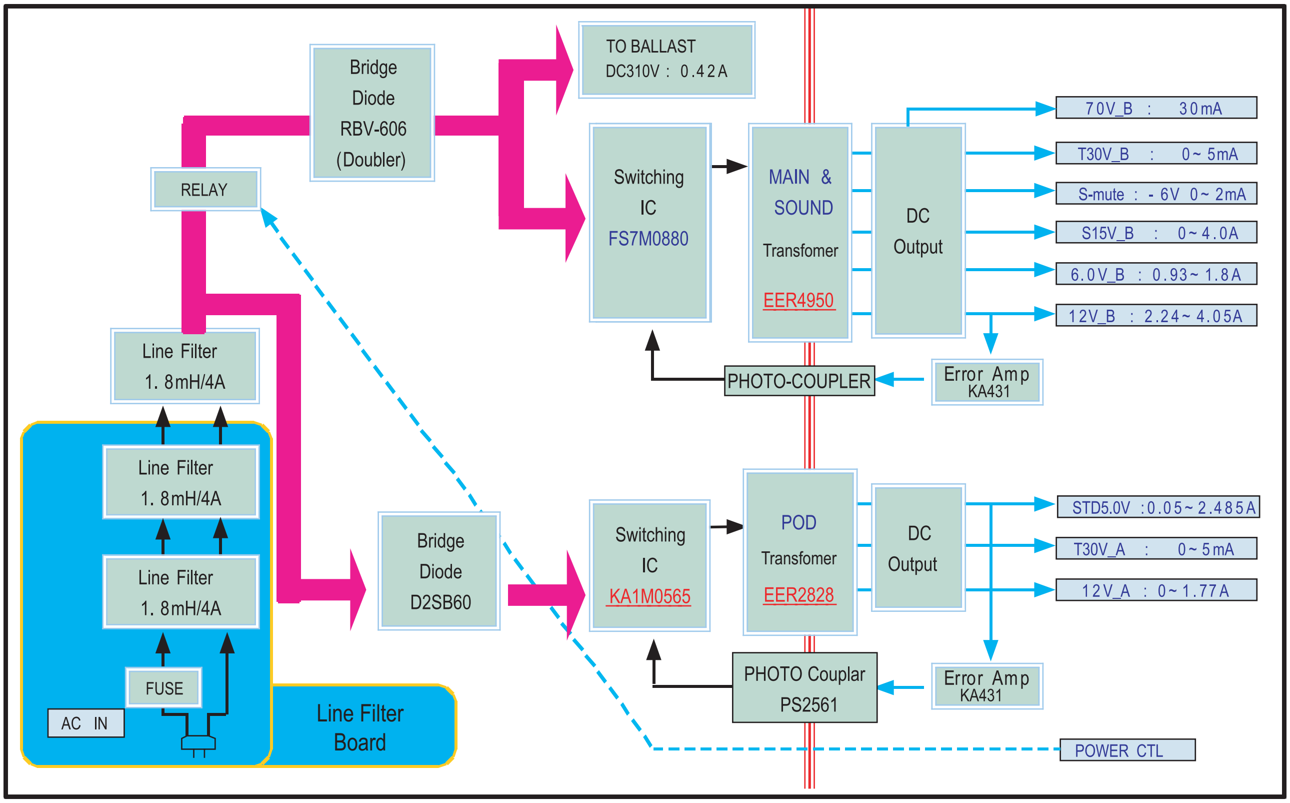
The final data by DNIe is processed in DDP1011 of the DMD board to display the image on the DMD panel. This image is created by the light of the lamp through the color wheel which is enlarged and projected onto the screen.
This is the DLP of the L7 or L8 type that the actuator operates additionally during this process.

The power terminal generates the DC power needed for the product and sends it to the analog board. The analog board supplies the power to the digital and DMD boards.
In the meantime, the power source board supplies DC220V - 400V directly to the ballast in order to light the lamp.
The ballast is like a stabilizer for lighting the lamp.

The ultimate purpose of the TV set is to project an image onto the screen and output the voice signals synchronized with the image. And based on the DMD panel used, a 1-panel TV requires a color wheel while a 3-panel TV does not. The HD3 panel needs an actuator while the HD2 does not. However, the drive mechanism and the overall block structure of the two panels are the same.

13-2 Partial Block Description

13-2-1 Power Board Block Description


Bridge
Diode
RBV-606
(Doubler)
TO BALLAST
DC310V : 0.42A
RELAY
Switching
IC
FS7M0880
MAIN &
SOUND
Transfomer
EER4950
DC
Output
70V_B : 30mA
T30V_B : 0~5mA
S-mute : -6V 0~2mA
S15V_B : 0~4.0A
6.0V_B : 0.93~1.8A
12V_B : 2.24~4.05A
PHOTO-COUPLER
Error Amp
KA431
Line Filter
1. 8mH/4A
Line Filter
1. 8mH/4A
Line Filter
1. 8mH/4A
FUSE
AC IN
Line Filter
Board
Bridge
Diode
D2SB60
Switching
IC
KA1M0565
POD
Transfomer
EER2828
DC
Output
STD5.0V :0.05~2.485A
T30V_A : 0~5mA
12V_A : 0~1.77A
PHOTO Couplar
PS2561
Error Amp
KA431
POWER CTL

1. What is SMPS?
   This is an acronym for Switching Mode Power Supply and this is responsible for receiving AC input voltage (Line frequency: 50HZ~60HZ) and supplying insulated DC output.

2. SMPS Components
   1) Standby Power: A combination of ICS801 (SWITCHING IC) and TS801S (TRANS) that supplies STAND-BY 5V for operating the Micom.
   2) Multi Power: The voltage supplied when the power is turned on.
      It is a combination of IC801S and T801S that supplies various voltages including D12V, A6.5V, S14.5V, T30V and A65V.

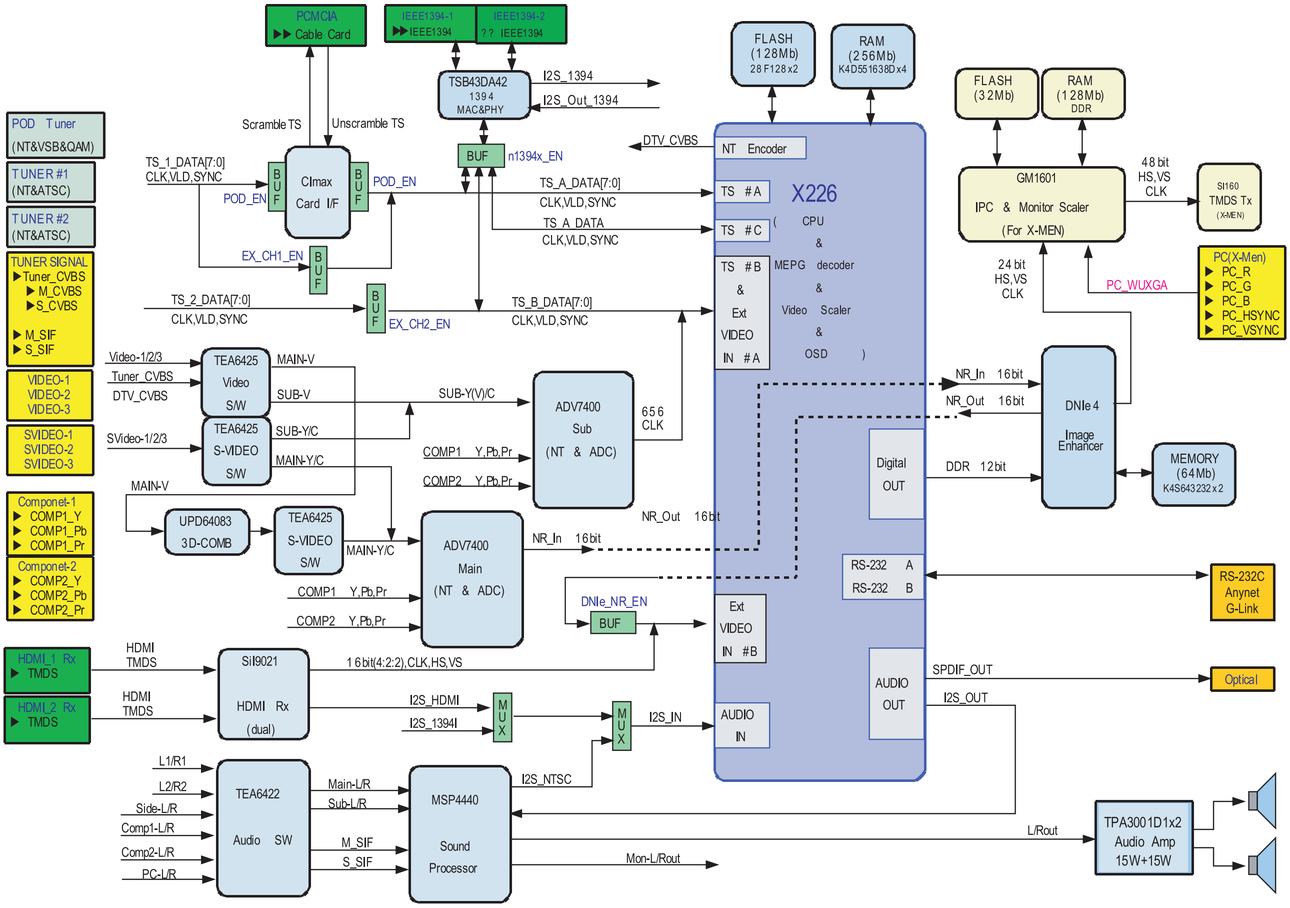
3. SMPS Operation
   1) SMPS System: Uses Fly-Back technology for both standby and multi power.
   2) Operation: Fly-Back is one of the most popular power-supply systems and uses less power than 200W as well as being the cheapest of all multi output SMPS systems.
      Let's have a look at how it operates···
      a. Converts AC input into DC (HOT) (rectifies to DS801 before smoothing to CS801)
      b. The converted DC voltage is high, especially compared to ground, so touching it will cause electric shock. Use T801S (Trans) to insulate the secondary voltage and take advantage of the PWM operations of T801S and IC801S to induce it.
      c. The secondary induced voltage is a dozen-KHZ square wave power, which goes through the smoothing cap (CS822) to be generated in the standby 5V.
      d. Multi power also operates the same way.

4. Input&Output voltage

1) Input voltage
- * Aemrica(AC120V) - OPTION
- * Korea(AC220V) - OPTION
- * The others(AC100V~AC240V) - OPTION

2) Output voltage
- * D12V / 2.5A - 12V , 3.3V , 1.8V : For signal processing
- * A6.5V / 1A - For driving the tuner
- * S14.5V / 4A -For driving sound processor
- * T30V / 5mA - For driving the tuner
- * A65V / 30mA - For driving the actuator

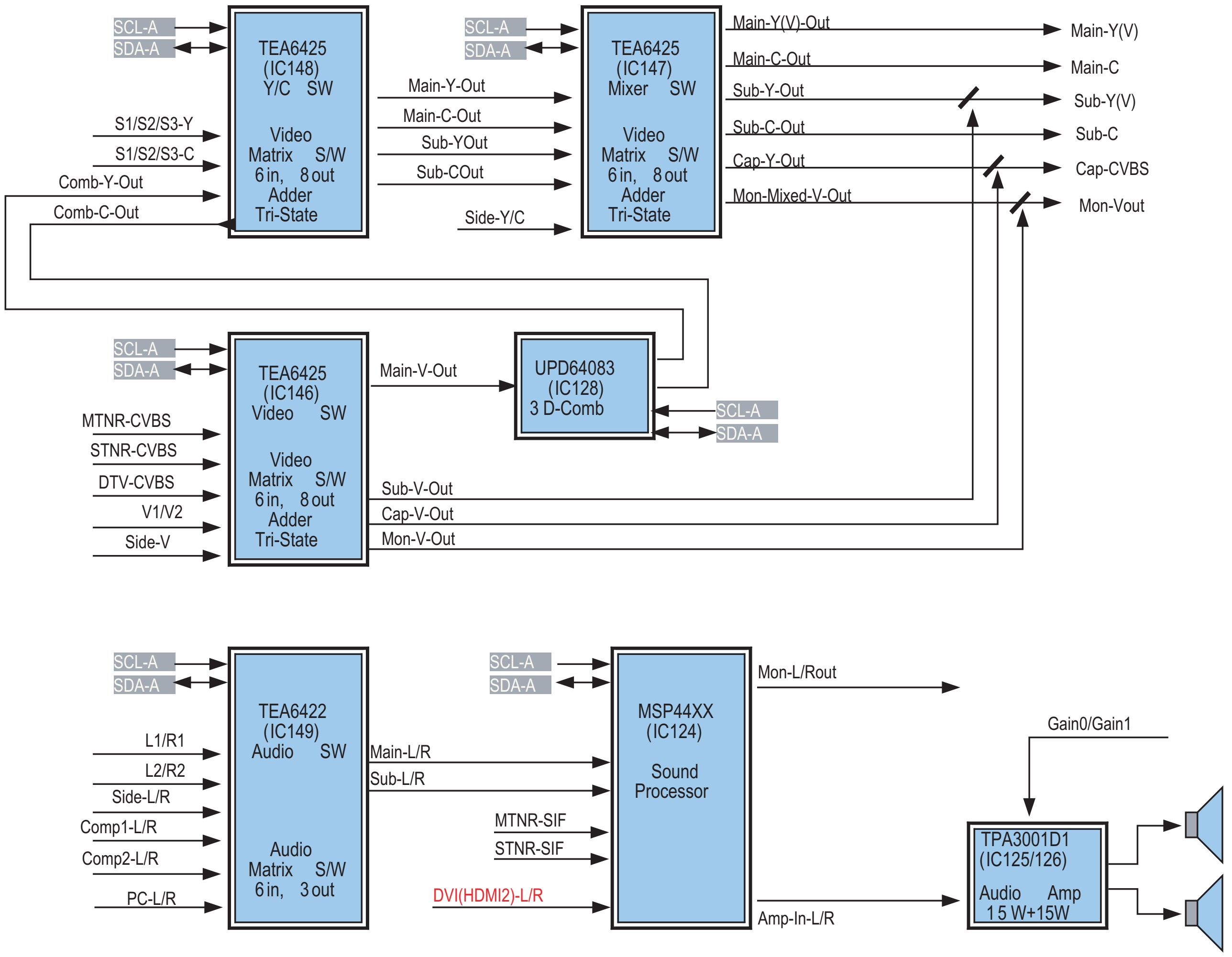
13-2-2 Digital Board Block Description


PCMCIA
Cable Card
IEEE1394-1
IEEE1394
IEEE1394-2
IEEE1394
TSB43DA42
1394
MAC&PHY
I2S_1394
I2S_Out_1394
BUF
n1394x_EN
FLASH
(128Mb)
28F128x2
RAM
(256Mb)
K4D551638Dx4
FLASH
(32Mb)
RAM
(128Mb)
DDR
POD Tuner
(NT&VSB&QAM)
TUNER #1
(NT&ATSC)
TUNER #2
(NT&ATSC)
TUNER SIGNAL
Tuner_CVBS
M_CVBS
S_CVBS
M_SIF
S_SIF
VIDEO-1
VIDEO-2
VIDEO-3
SVIDEO-1
SVIDEO-2
SVIDEO-3
Componet-1
COMP1_Y
COMP1_Pb
COMP1_Pr
Componet-2
COMP2_Y
COMP2_Pb
COMP2_Pr
HDMI_1 Rx
TMDS
HDMI_2 Rx
TMDS
Scramble TS
Unscramble TS
TS_1_DATA[7:0]
CLK,VLD,SYNC
POD_EN
BUF
CImax
Card I/F
BUF
POD_EN
EX_CH1_EN
BUF
TS_2_DATA[7:0]
CLK,VLD,SYNC
BUF
EX_CH2_EN
TS_A_DATA[7:0]
CLK,VLD,SYNC
TS_A_DATA
CLK,VLD,SYNC
TS_B_DATA[7:0]
CLK,VLD,SYNC
DTV_CVBS
NT Encoder
TS #A
TS #C
TS #B
&
Ext
VIDEO
IN #A
X226
(CPU
&
MEPG decoder
&
Video Scaler
&
OSD)
GM1601
IPC & Monitor Scaler
(For X-MEN)
48bit
HS,VS
CLK
SI160
TMDS Tx
(X-MEN)
24bit
HS,VS
CLK
PC_WUXGA
PC(X-Men)
PC_R
PC_G
PC_B
PC_HSYNC
PC_VSYNC
Video-1/2/3
Tuner_CVBS
DTV_CVBS
TEA6425
Video
S/W
MAIN-V
SUB-V
SVideo-1/2/3
TEA6425
S-VIDEO
S/W
SUB-Y/C
MAIN-Y/C
SUB-Y(V)/C
ADV7400
Sub
(NT & ADC)
656
CLK
COMP1 Y,Pb,Pr
COMP2 Y,Pb,Pr
NR_In 16bit
NR_Out 16bit
DNIe4
Image
Enhancer
Digital
OUT
DDR 12bit
MEMORY
(64Mb)
K4S643232x2
MAIN-V
UPD64083
3D-COMB
TEA6425
S-VIDEO
S/W
MAIN-Y/C
ADV7400
Main
(NT & ADC)
NR_Out 16bit
NR_In 16bit
COMP1 Y,Pb,Pr
COMP2 Y,Pb,Pr
RS-232 A
RS-232 B
RS-232C
Anynet
G-Link
DNIe_NR_EN
BUF
Ext
VIDEO
IN #B
HDMI
TMDS
SiI9021
16bit(4:2:2),CLK,HS,VS
HDMI
TMDS
HDMI Rx
(dual)
I2S_HDMI
I2S_1394I
MUX
MUX
I2S_IN
AUDIO
IN
AUDIO
OUT
SPDIF_OUT
Optical
I2S_OUT
L1/R1
L2/R2
Side-L/R
Comp1-L/R
Comp2-L/R
PC-L/R
TEA6422
Audio SW
Main-L/R
Sub-L/R
M_SIF
S_SIF
MSP4440
Sound
Processor
I2S_NTSC
L/Rout
Mon-L/Rout
TPA3001D1x2
Audio Amp
15W+15W

- ■ ADV7400: Analog YPBPR, CVBS, Y/C(SUPER), Input MUXING and Video Decoding
- ■ X226: CPU, + MPEG Decoder, Audio signals transferred to MSP of the analog board by I2S
- ■ DNIe: Uses a noise-filtering and picture quality improvement algorithm to implement natural colors.
- ■ Tuner: Two HD tuners, each taking the role of the analog tuner.
- ■ HDMI: Receives one input signal and transfers it to X226 in 24 bits.
- ■ Others: Anynet implementation, Optical Power Port, USB Update Port (not available for MP3)

The L8HD digital board contains two HD tuners to implement analog as well as digital signals from air/cable broadcasting.
It decodes Y PB PR CVBS, Y/C(SUPER) and HDMI inputs using ADV7401 and silicon chips, which are transferred to X226 (ATI), a combination of the main CPU and the MPEG decoder.
All video/audio inputs are transferred to X226 for digital processing and all video output goes through DNIe to the DLP DMD board.
Audio signals are transferred to the MSP chip of the analog board using I2S and are emitted through the speaker.
It also has an Anynet port, a 5.1 channel optical port and a USB port for a S/W update.

13-2-3 Analog Board Block Description


SCL-A
SDA-A
TEA6425
(IC148)
Y/C SW
Video
Matrix S/W
6 in, 8 out
Adder
Tri-State
S1/S2/S3-Y
S1/S2/S3-C
Comb-Y-Out
Comb-C-Out
Main-Y-Out
Main-C-Out
Sub-YOut
Sub-COut
Side-Y/C
SCL-A
SDA-A
TEA6425
(IC147)
Mixer SW
Video
Matrix S/W
6 in, 8 out
Adder
Tri-State
Main-Y(V)-Out
Main-C-Out
Sub-Y-Out
Sub-C-Out
Cap-Y-Out
Mon-Mixed-V-Out
Main-Y(V)
Main-C
Sub-Y(V)
Sub-C
Cap-CVBS
Mon-Vout
SCL-A
SDA-A
TEA6425
(IC146)
Video SW
Video
Matrix S/W
6 in, 8 out
Adder
Tri-State
MTNR-CVBS
STNR-CVBS
DTV-CVBS
V1/V2
Side-V
Main-V-Out
UPD64083
(IC128)
3 D-Comb
SCL-A
SDA-A
Sub-V-Out
Cap-V-Out
Mon-V-Out
SCL-A
SDA-A
TEA6422
(IC149)
Audio SW
Audio
Matrix S/W
6 in, 3 out
L1/R1
L2/R2
Side-L/R
Comp1-L/R
Comp2-L/R
PC-L/R
Main-L/R
Sub-L/R
SCL-A
SDA-A
MTNR-SIF
STNR-SIF
DVI(HDMI2)-L/R
MSP44XX
(IC124)
Sound
Processor
Mon-L/Rout
Amp-In-L/R
Gain0/Gain1
TPA3001D1
(IC125/126)
Audio Amp
15 W+15W

- ■ Analog Video Signal Processing
- ■ Select Sound/Video

  One is selected from multiple inputs by the switching ID. MICOM decides which port is used for output.

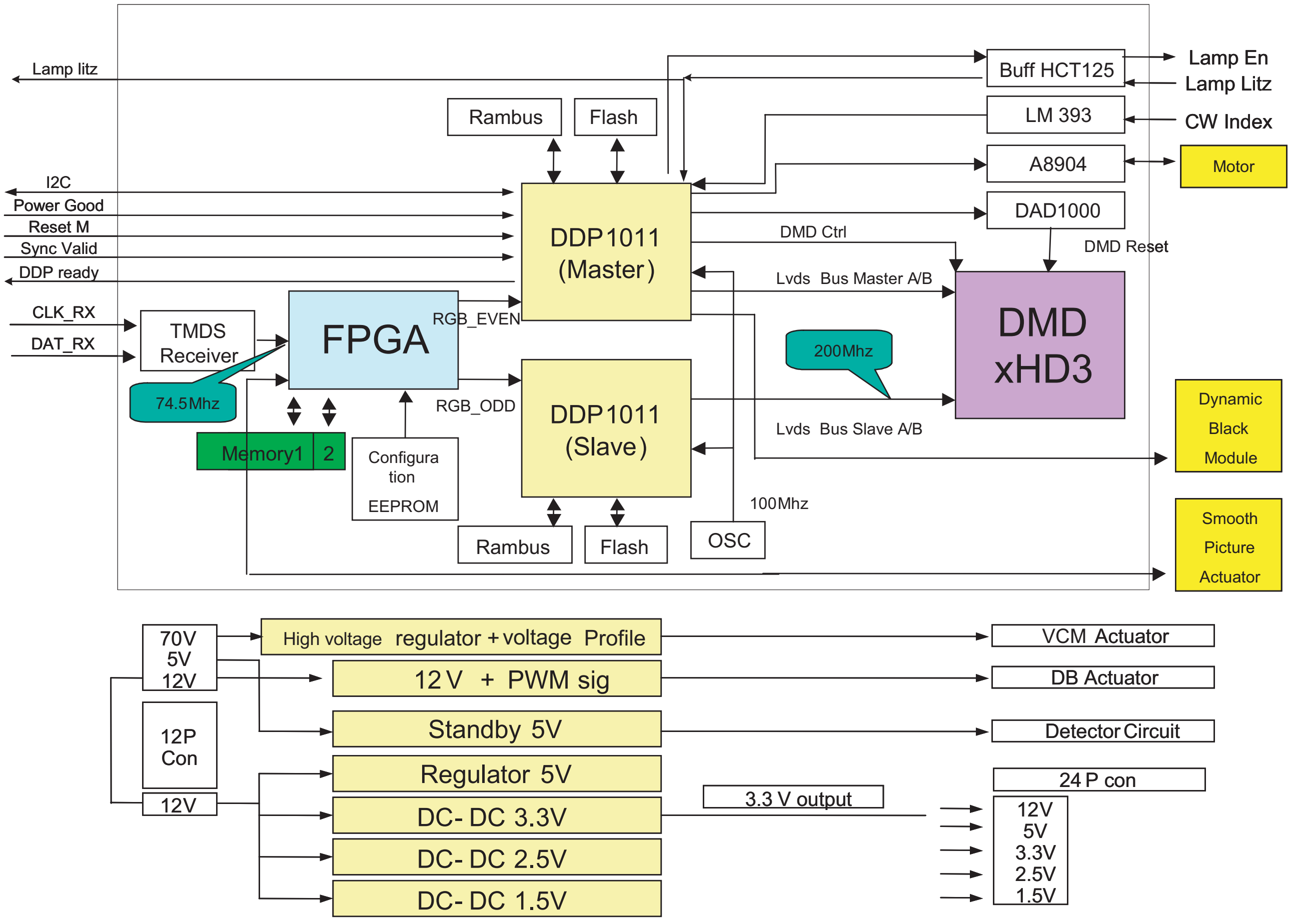
  For broadcasting signals, sub-outputs are transferred in CVBS and, the main outputs in Y/C through the 3D Comb, to the digital board.

  Sound signals are selected by the switching IC, of which only one input is transferred to the speaker.
- ■ Detection Signal Flow

  When each port is connected to a signal cable, the detection signal is "low" and can be checked by Micom scanning.
- ■ Y/C Separation

  The 3D Comb filter divides RF CVBS signals into Y/C before being transferred to the digital board.

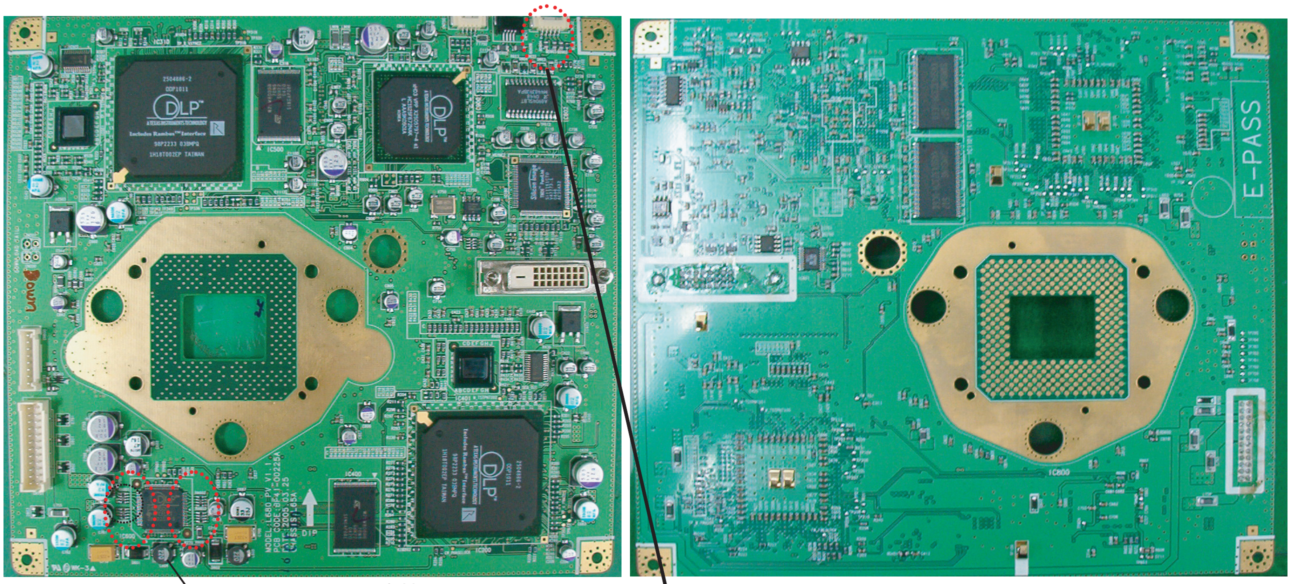
13-2-4 DMD Board Block Description

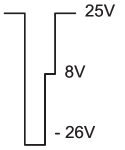

Lamp litz
Buff HCT125
Lamp En
Lamp Litz
Rambus
Flash
LM 393
CW Index
A8904
Motor
I2C
Power Good
Reset M
Sync Valid
DDP ready
DDP1011
(Master)
DAD1000
DMD Ctrl
DMD Reset
Lvds Bus Master A/B
CLK_RX
DAT_RX
TMDS
Receiver
FPGA
RGB_EVEN
DMD
xHD3
200Mhz
74.5Mhz
RGB_ODD
DDP1011
(Slave)
Dynamic
Black
Module
Lvds Bus Slave A/B
Memory1
2
Configura
tion
EEPROM
100Mhz
Rambus
Flash
OSC
Smooth
Picture
Actuator
70V
5V
12V
High voltage regulator + voltage Profile
VCM Actuator
12 V + PWM sig
DB Actuator
12P
Con
Standby 5V
Detector Circuit
Regulator 5V
24 P con
12V
3.3 V output
DC- DC 3.3V
12V
5V
3.3V
2.5V
1.5V
DC- DC 2.5V
DC- DC 1.5V

- Controls the lamp (ON/OFF)
- Drives the color wheel motor
- Drives the panel
- Controls the sensors

13-3 New Circuit Description

13-3-1 Output Voltage States of the DMD Board Parts





Output Terminal
Waveform for
RA600,601,602,603

LOC	Characteristics	
BD904	LAMP EN	High from DDP1011
BD902	LAMP LITZ	High(5V) before the lamp turns on, Low(0V) when the lamp turns on

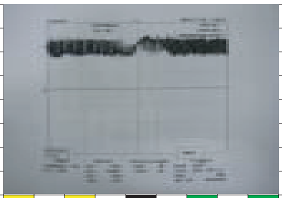
13-3-2 DMD Panel Pin Terminal Characteristics Diagram

※ Remove the heat sink attached to the DMD Board and tighten the screws in four places and then inspect the characteristics of each pin terminal.

	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A				■		V		V		DA	N6	DA	N4	V		DA	N2	DA	P0	V		G		G		■		V		V		G		G		■		V		N	A
B			V						■		DA	P6	DA	P4	■		DA	P2	DA	N0	■		■		■		■		■		G				C		■		■		B
C		■		■		■		G		■		DA	P7	DA	P5	■		DA	N3	DA	N1	■		■		■		■		G				■		■		■		V	C
D	DA	N8	DA	P8	C		C		■		DA	N7	DA	N5	■		DA	P3	DA	P1	■		■		■		G				■						■		V		D
E		DA	N10	DA	P10	DA	P9	DA	N9																									■		■		■		V	E
F	V		■		■		■																										■		■		V		V2		F
G		DA	N12	DA	P12	DA	P11	DA	N11																									■		■		■		V2	G
H	V2		V2		DA	P13	DA	N13																									■		■		■		V2		H
J		V		■		■		■																										■		■		V		V2	J
K	DA	P14	DA	N14	DA	P15	DA	N15																									■		■				V		K
L		DB	P14	DB	N14	DB	P15	DB	N15																									■				ME		V	L
M	V		■		■		■																										■		14		11		V2		M
N		V2		V2		DB	P13	DB	N13																									10		5		1		V2	N
P	DB	N10	DB	P10	DB	P11	DB	N11																									■		4		V		V2		P
R		V		■		■		■																										■		■		V		V2	R
T	DB	N10	DB	P10	DB	P9	DB	N9																									■		■		■		V		T
U		DB	N8	DB	P8					■		DB	N7	DB	N5	■		DB	P3	DB	P1	■		6		3		T0		G						0		■		V	U
V	■		■		■		EV		■		DB	P7	DB	P5	■		DB	N3	DB	N1	■		13		9		■				G		■				■		V		V
W		V		C		C		■		DB	P6	DB	N4	■		DB	P2	DB	N0	■		12		8		■		7		T2		G		C		■		V			W
Y			■		V		V		DB	N6	DB	P4	V		DB	N2	DB	P0	V						■		V		2		T1		G		■		V				Y
	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

The vertical lines, which may occur due to improper connections between the panel and the PCB, occur with intervals of 50 inches(26mm). If vertical lines occur with intervals of more than 26mms, it indicates a failure of the DDP1011 IC itself. If they occur with intervals of less than 26mm, it means that more than two pins have bad connections.

DA,DB output wave
[Screen:WHITE]

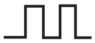


Pin Name	Description	Pin Name	Description
V	Voltage : 3.3V	T	Test Point
V2	VCC2 : 8V	ME	Mirror Bias Extra
DA	A Channel Data Bus [When measured, there should be a waveform]	C	Clock
DB	B Channel Data Bus [When measured, there should be a waveform]	P#	A,B Channel Positive
NO.	MBRST# (Mirror Bias Rest) 26V	N#	A,B Channel Negative
G	The part from the present position to the GND (The black part is also a GND.)		

13-3-3 Description of Terminal Characteristics

Pin Name	Description
SCTRL_BN/P	B channel LVDS serial control
DCLK_BN/P	B channel LVDS CLOCK
SCPDI	SERIAL CONTROL DATA INPUT
SCPDO	SERIAL CONTROL DATA OUTPUT
SCPENB	SERIAL CONTROL ENABLE
SCPCK	SERIAL CONTROL CLOCK
DMD RESETB	DMD LOGIC RESET
MBRST(14:0)	MIRROR BIAS RESET
MBRST_EXTRA	UNUSED MIRROR BIAS RESET
SCR_CLR	TEST CLEAR PINS(NORMAL GND)
READOUTA(1:0)	A-CHANNEL SERIAL DATA OUT DURING SPAM READ TEST OPERATION
READOUTB(1:0)	B-CHANNEL SERIAL DATA OUT DURING SPAM READ TEST OPERATION
TP(2:0)	MANUFACTORING TEST POINT(NO CONNECTED DURING NORMAL CPERATION)
RSV_A(4:0)/RSV_B(4:0)	RESERVED PINS(NORMAL:GND)
EVCC	REFERENCE VOLTAGE DURING SPAM READ TEST OPERATION(NORMAL GND)
VCC2	MIRROR ELECTRODE VOLTAGE(7.3V)
VCC	LOGIC SUPPLY
VSS	LOGIC GROUND

13-3-4 Engine Failure Inspection Flow Chart for the DMD Board

No.	Description	Key Point	Remark
1	1) When the power cord is plugged in, 2) DC220V~410V(typical 300V) is automatically supplied to the ballast.	Check whether the DC220V~410V(typical 300V) power is supplied to the ballast.	
2	1) When the power key is pressed via the remote control, the micom of the analog board outputs high (5V) PWR signals. 2) The power board operates normally. 5V and 12V are supplied to the DMD CN105 terminal.	Check whether 5V and 12V are supplied to the CN105 terminal.	＊12V must be supplied to operate the motor.
3	1) The MTR Reset signal is supplied to the R161 terminal of the motor IC101 from the micom on the digital board and then the motor starts to drive. 2) If the color wheel rotates for a certain time and then stops, check whether the color wheel sensor is normal. (Check the waveform on the No.2 terminal below CN102.) 	After the set is powered on, check whether 5V is detected on pin No.49 of IC101. → After a while, the sound generated by the rotating color wheel is heard.	＊If 5V is not detected, the motor will not operate.
4	1) Check whether the signal (SCI: START CONTROL INPUT) that turns on lamp #2 of CN109 on the DMD board is high (5V).	Check whether CN109 #2 signal is 5V.	＊When SCI is high (5V), the lamp litz of CN109 is low (0V). ＊CN109 #2 terminal voltage changes to pulse wave form 14 seconds after (for 50 inch TV) the time that the voltage is 5V. * When about 4 seconds have passed after changing to pulse waveform, the screens are displayed on the set.
5	1) Method for checking whether the DDP1010 IC RESET is normal.	If the voltage between R254 and R255 is 3V, it is normal.	

13-3-5 IC Line Up

1. Power Board

Items	Descriptions	Remarks
Main SMPS	FS7M0880, Fairchild	IC-PWM Controller ; Main Power
Stand-by SMPS [America]	KA1M0565, Fairchild	IC-PWM Controller ; Stand-by Power
Stand-by SMPS [Korea]	KA5M0165, Fairchild	IC-PWM Controller ; Stand-by Power

2. Digital Board

Items	Descriptions	Remarks
MPEG2 Decoder	X226B	CPU(MIPS), TS Demux, MPEG2 Decoder, Format converter, Deinterlacer, Scaler, USB
analog Decoder, ADC	ADV7401	Video Processor, ADC
HDMI Receiver	sil9021	Digital Receiver for HDMI with HDCP
COMPONENT S/W	BA7657	COMPONENT S/W, H/V Sync S/W
Video Enhance	SDP32 SAMSUNG	RGB Processor
Program ROM	28F128 x 2	32M(1M x 16) x 2, Nor-Type Flash Memory
Frame Buffer	192MB DDR, 64M ,Samsung	Frame Memory
TMDS Transmitter	sil160	sil160CT100
IEEE1394	JEDI(TSB43DA42A)	IEEE1394 Interface
Gemstar EPG	Yamu MICOM(3P8OB5X)	IR Blaster

3. Analog Board

Items	Descriptions	Remarks
Video Switch	TEA6425, SGS-Thomson	Video Switch IC for TV *3
Audio Switch	TEA6422, SGS-Thomson	Audio Switch IC for TV
3D-Comb	uD64083, NEC	3 Dimensional Y/C Separation LSI
Sound Module	MSP4440, Micronas	Multistandard Sound Processor With TruSorround XT
Sound AMP	TPA3001D, TI	1 Channel Digital Audio Power Amplifier *2
Micom	SDA55xx, Micronas	Micro Controller

4. DMD Board

Items	Descriptions	Remarks
DMD Driver	DDP1011, TI	DLP Data Processor
Reset, Power	DAD1000, TI	DMD Power and Reset Driver
Motor Controller	A8904, Allegro	12V VCM/Spindle Pre-Driver
Frame Buffer	K4R271669, Samsung	128M(246K x 16 x 32B), Rambus DRAM
Clock Generator	CDCR83, TI	Direct Rambus Clock Generator
Program ROM	M29W800BT, ST	8M(1M x 8 or 512K x 16), Flash Memory
Actuator Driver	Cyclone, Altera	Frame Extractor 60Hz(1 frame) → 120Hz(1/2 frame)
LVDS Receiver	THC63LVD104, Thine	LVDS Digital Receiver, 75MHz

MEMO

14. Reference Information

14-1 Other issues related to other products

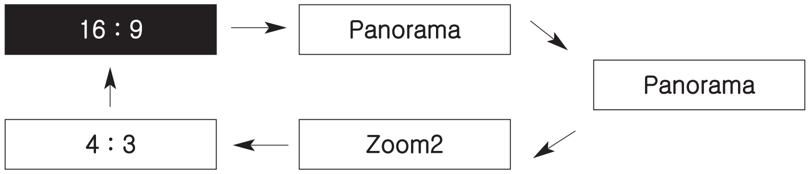
Problem	Descriptions
A fixed screen can cause permanent damage to the TV Braun tube.	Braun, PDP and LCD TVs can all be damaged. When a still image is displayed in a sequence, this can leave stains or after-images due to the characteristics of the panel. However, the DLP TV has the advantage that no stains or after-images are left on the screen. The DLP TV has mirror pixels on the DMD panel that project the beam onto the screen, in which the mirror is a digital representation of 0s and 1s, leaving no trace of light. The mirror returns to a blank state so that no stains or after-images are left.
Confusion between the ANYNET Port and the SERVICE Jack Port	The SAMSUNG SKY500N model has both an ANYNET port and a SERVICE jack port. Because the shape of the ANYNET port on the DLP TV is the same as that of the SERVICE jack port of the SKY500N, it fails to turn the TV off after a connection has been reported. The ANYNET port uses an RS232 port called Phone Jack, and the SERVICE jack port also uses the RS232 port. However, you must not connect the SERVICE port and the ANYNET port. Check if the port is the ANYNET port or the SERVICE port before connecting the port. Even if the TV cannot be turned on after connecting, the TV will turn on if you disconnect the connection.
Length of DVI Cable / PC RGB Cable	- A too long DVI cable may cause a malfunction or degradation of the visual quality due to an attenuation of the signal. There is no recommendation for the cable length at present. In general, although a cable length of up to 5 meters should work, please check if video is properly displayed on the screen after connecting. If you think the length of the cable is longer than for normal use, check the visual quality of the video on the screen and shorten the length, if necessary. - This also applies to the PC RGB (D-Sub) cable. When the length of the cable is longer than for normal use, video may not be displayed on the screen. In this case, shorten the cable length.
When a digitally distributed TV user receives HD-rated broadcasts:	The digital distributed TV (Ready Technique) can render HD sources as HD-rated. However, you need to install a set-top box for this purpose. The digital TV alone cannot render HD broadcasting as HD-rated. Install the formal set-top box for HD broadcasts.
When a digital distributed TV user selects normal size (4:3) to receive SD-rated digita broadcasts:	The digitally distributed TV (Ready Technique) renders any broadcasting service as SD-rated. However, when connected to a set-top box, the digital TV renders HD broadcasts as HD-rated and renders SD as SD-rated. The screen size is scaled to 4:3.
When a digitally built-in TV user receives SD (air) broadcasting:	The digitally integrated TV ("built-in" type) renders SD broadcasting as SD-rated. This can be understood easily. Even a high-resolution TV cannot improve a low resolution picture into high quality. In contrast, an SD-rated TV cannot represent HD broadcasting as HD because the resolution of the TV is lower than the original.
When selecting a picture size of 4:3 in connection with a computer or a multimedia device:	The representation capability of SD or HD-rated depend entirely on the TV set. The HD TV can render HD broadcasting as HD-rated only when it receives HD sources. In the meantime, the HD TV renders SD as SD-rated when it receives SD sources. The picture size has nothing to do with the resolution; TV models like SVP-XXL3HD or SVP-XXL6HD have a size adjustment feature to 16:9, 4:3, Panorama, Zoom1, Zoom2 and Auto Wide. This is about the aspect ratio of the top and bottom boundaries to the overall screen and users can select their preference.

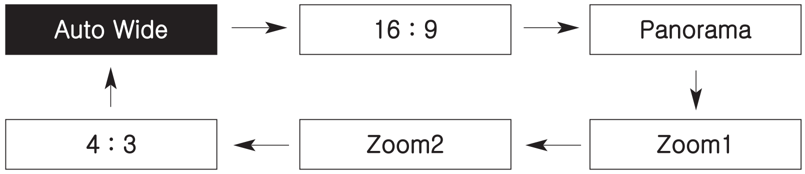
SD/HD broadcasts and the TV's display capability are related

1. A digital broadcast should be transmitted in wide screen (an aspect ratio of 16:9) HD. If the broadcasting station converts a conventional program created in normal screen (aspect ratio of 4:3) into a digital signal and broadcasts the signal, the left and right of the picture will not be displayed.
   This symptom also appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.
   * When watching an SD (normal) broadcast through a Digital (Wide) TV (480P normal broadcast)
   * When watching an SD (normal) broadcast through a Digital Ready (Wide) TV (Using a set-top-box)
   * When watching an analog (normal) broadcast through a wide TV
     (When watching a broadcast after changing the aspect ratio of the TV from 16:9 (wide screen) to 4:3)

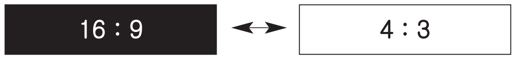
2. When watching a DVD title or video tape in wide screen (21:9) through a wide (16:9) TV, watching video from a computer or game console by selecting the aspect ratio to 4:3, or watching video from a DVD, VCR, computer or game console through a wide TV by selecting the aspect ratio to normal (4:3) or wide (21:9), the left and right, or top and bottom of the picture will not be displayed.
   This symptom appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.

Changing the Order of the Picture Size for 16:9 Display Devices





Changing the Order of the Picture Size for DTV 1080i/720p Sources



Restrictions

1. When you want to change the picture size in PIP 'ON', you must turn the PIP off before changing the size.
   However, you can change the main picture size even in PIP ON for products with no restrictions.

2. When the picture size is not Normal (4:3 for 4:3 display devices, 16:9 for 16:9 display devices) and you turn PIP on, the picture size is changed to Normal.
   However, you can turn PIP on without changing the picture size for products with no restrictions.

3. In the OSD notation for the picture size, 16:9 is represented as "Wide" instead of "16:9" for devices other than with 16:9 displays.
   Ex: For LCD 15:9 devices, "Wide" is displayed on the OSD instead of "16:9".

4. The picture size can be changed even in the blue screen.
   However, the picture size should be controlled by the product specifications if the change is impossible due to hardware restrictions.

14-2 Technical Terms

PIP (Picture In Picture)
A feature to enable two video images being displayed on one screen at the same time. For instance, you can see the TV channel and the video image at the same time.

Digital Broadcasting
The ATSC (Advanced Television Systems Committee) signals that the station digitalizes before transferring the audio/video signals.

Mono
A sound system that transmits voice signals in only one channel. It is hard to experience a 3D effect but can be run with one speaker.

LNA (Low Noise Amplifier)
This uses satellite technologies to amplify weak signals for improved quality even in poor reception areas.

Stereo
A sound system that transmits voice signals in two channels This implements 3D effects by transmitting to both speakers (left/right).

Analog Broadcasting
The conventional system in which the station transfers the audio/video signals in NTSC formats.

Antenna Terminal
A terminal which the TV antenna is connected to. A round coaxial cable is connected to this terminal, which is usually used to watch air broadcasts.

English Captions (Subtitle)
A feature to provide English captions or character information services, which the user can use to study English using AFKN broadcasting or video tapes marked with "CC".

Audio/Video Terminal
The old 3- or 4-channel TV with no AV terminal has a low quality issue for video tape. The problem can be resolved using an A/V terminal that separates the audio and video signals. The video terminal is in yellow; the audio terminal is divided in two, white for left and red for right.

External Source
This includes sources from the video recorder, DTV set-top box and DVD player, (anything but the TV).

DVI-I Cable
One of the DVI cables that can transfer both digital and analog signals.

Satellite Broadcasting
This uses a satellite system to support a maximum of 100 channels including air services and provides high quality pictures anywhere in the country, even in poor reception areas. A set-top box (unbundled) is required to watch satellite broadcasting.

Closed Broadcasting
Other than VHF and UHF, this includes movies, entertainment and educational programs broadcast by hotels or schools. This is different from cable broadcasting.

Multiplexing
Two languages are provided at the same time when broadcasting foreign movies, dramas and news programs. You can choose either a native or foreign language, or choose both at the same time.

Component Terminal (Green, Blue, Red)
This provides maximum quality by dividing the contrast signals before transferring.

Cable Broadcasting
Compared to air broadcasting, it uses the cable system to transfer the signals. You should subscribe to a local cable broadcasting company and install a separate receiver.

Tuner
A device used to select a particular frequency from the TV set or the radio receiver.

Anynet
An AV networking system of Samsung's various AV devices, which enables the user to conveniently control AV devices using the TV.

DVD (Digital Versatile Disc)
This is a CD-sized, high storage disk that can store multimedia data including videos, games and audio applications using MPEG-2 compression technology.

DVI (Digital Visual Interface) Terminal
This is a digital signaling standard.
This uses TMDS to reduce the signal loss rate for sharper images.

DVI-D Cable
One of the DVI cables that can only transfer digital signals.

HDMI (High Definition Multimedia Interface)
An interface into which the digital signals as well as the high quality image data can be connected with one cable. There is no need to compress the bit rate.

S-video Terminal
This is, called "Super-video", divided into video and color signals for sharper image display.

VHF/UHF
VHF refers to the 2 - 13 channel system; UHF indicates the 14 - 69 channel system.

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